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Nos. 22137 - 23144

Sept. 24, 1944 - Feb. 19, 1945  
Colombia, Ecuador & E.U.S.

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COLOMBIA

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# Collection and Field Note Book

No. 12

Sept. 24, 1944 - Feb. 19, 1945

Nos. 22137-23144

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near Monos, Prov. El Oro ..... 202

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Sept. 24, - Sleepy Hollow,  
along Tripps Run, 1 mile  
S. of Falls Church, Fairfax Co.  
Old fields, ~~and~~ thickets  
and bottom lands.

22137 *Liquidambar styraciflua*  
roadside

38 *Liquidambar styraciflua*  
edge of old field

39 *Liquidambar styraciflua*

40 *Echinochloa crus-galli*  
roadside

41 *Cyperus*  
roadside

42 *Carya*  
roadside

tree 10 m. tall <sup>3 dm. thick</sup> ~~in roadside~~,  
corkiness extreme but  
corkless twigs found  
on same tree.

tree 20 m. tall, spreading,  
trunk ~~20 m.~~ 1 m. thick,  
no corky ridges seen  
on ~~trunk~~ twigs.

mass collection taken to  
show variation between  
extremes of corkiness  
represented by #22137 & #22138  
twigs of 2 season old wood  
taken on lower branches  
of south side of tree  
where at least some  
sun reaches it. Leaves  
of small type characteristic  
of dwarf branchlets in 2 season  
wood. In each case the  
twig is the one most corky  
on casual observation.  
Trees all 5 m. tall or more.

Tree 8 m. tall, fruit green,  
globose, buds not golden.



- 27143 *Cirsium discolor* (Muhl.) Spreng.  
~~scattered~~ old field with  
 scattered brush
- 44 *Aster*  
 very abundant in old  
 field
- 45 *Lespedeza*  
 common in old field
- 46 *Botrychium dissectum* var. *obliquum* (Muhl.) Clute  
 rare in old field (one seen)
- 47 *Crotalaria sagittalis* L.  
 common locally in old field
- 48 *Lechea*  
 rare in old field
- 49 *Nyssa sylvatica*  
 fence-row
- 50 *Euphorbia*  
 abundant on road embankment
- 51 *Erigeron*  
 road embankment
- 52 *Commelina*  
 along stream in pasture
- 53 *Ulmus americana* L.  
~~roadside~~ roadside thicket
- ✓ Oct. 1 - Tripp's Run, 1 mi. s. of  
 Falls Church, Fairfax Co. Va.  
 pasture near stream
- 54 *Crataegus*
- 55 *Paronychia*  
 base of great granite rocks  
 on rocky knoll in pasture
- 56 *Polygonum*  
 same.

herb 1 m. tall, fls. purple.

rays white, disk yellow  
 turning maroon.

prostrate, fl. pale pink  
 with deeper center to banner

fl. yellow.

young tree 6 m. tall, fruits  
 black, fleshy.  
 lactiferous

rays white, disk greenish-yellow

upper petals large, <sup>bright</sup> blue,  
 lower one small, white.

small tree 5 m. tall  
 fruits dull red.

fls. white



22157 *Paronychia*  
same

3 58 *Euphorbia*

✓ Oct. 29 - Santanderito (Santander),  
Rio Bogotá below Tequendama  
Falls, Cund. 1500 m.

59 *Corn.*

cultivated on rock wall

✓ Nov. 1 - Mouth of San Francisco  
Canyon, <sup>lower slopes</sup> of Guadalupe  
Peak, Bogotá, Cund.

2700-2800 m.

<sup>open</sup> sparse, planted forest  
of *Eucalyptus globulus*  
on steep rocky slopes.

L 60 *Alchemilla*

scattered, common locally

L 61 *Blechnum* <sup>off. occidentale</sup>  
scarce, local

L 62 *Cyan.*  
common

L 63 *Galium*  
scarce

L 64 *Lathyrus*  
common,

L 65 *Urtica*  
occasional, shaded by brush

L 66 *Melast.*  
common on more open ledges

3 67 *Bulbostylis*  
occasional on ledges

prostrate

vine, inflorescences  
erect, buds deep red,  
flowers cream-white.

most of understorey dominated  
by *Eccremis coarctata*, with  
*Centropogon* (?) sp.

spawling

leaves stiff-chartaceous

very small tufts.

prostrate from threadlike  
rootstocks.

loosely carpeting soil

fls. bright yellow.

tufts with most of  
leaves + culms dead.



- 22168 *grass*  
 common  
 69 *grass*  
 occasional  
 70 *grass*  
 scarce  
 71 *grass*  
 scarce  
 72 *Paspalum*  
 very scarce, around edges  
 of rocks  
 73 *grass*  
 scarce, in clump of bushes  
 74 *grass*  
 occasional  
 75 *grass*  
 common in open places  
 76 *Pteridium aquilinum* (L.) Kuhn. var.  
 very common  
 77 *fern*  
 rare, in sheltered places  
 78 *fern*  
 common on ledges  
 79 *fern*  
 common on vertical banks  
 80 *fern*  
 common on edges of ledges  
 81 *Polypodium*  
 ledges

## Cundinamarca

- small tufts  
 small tufts  
 small dense tufts  
 spikes red  
~~in clump~~  
 vine, tangled in  
 bushes, fls. white,  
~~plant~~ latex exudes  
 from broken places  
 large dense spreading  
 clumps, infl faintly  
 lavender when  
 young.  
 fronds stiff, coriaceous,  
 often 1.5 m. tall and  
 correspondingly complex.  
 thick mats ~~in clump~~  
 cushions  
 mat-forming  
 thick cushions, plants  
 bright pale green, starlike.



- ✓ Nov. 7 - Rio Loopaga, 12 km  
e. of Belén  
on and at foot of 3000 ft.  
fave slope of tilted sandstone.
- L. 77182 *Dalea*  
common on slopes of rocky  
soil
- L. 83 *Tillandsia*  
on trunk and branches of  
small trees.
- L. 84 *Setaria*  
in soil at base of slope
- L. 85 *Dodonaea viscosa*  
commonest shrub on dry slopes
- L. 86 *Gnaphalium*  
common on rocky soil foot of slope
- L. 87 *Cyperus*  
scattered at foot of slope
- L. 88 *Notholaena*  
common in lower crevices
- L. 89 *Drymaria*  
local on rocky disturbed  
soil at foot of slope
- L. 90 *Yucca*  
rare in soil at foot of slope
- L. 91 *Yucca*  
common in soil at foot of slope
- L. 92 *Yucca*  
only one seen, at foot of slope
- L. 93 *Yucca*  
rock crevices & soil pockets
- L. 94 *Sida*  
base of slope

scrubby bushes up to 1 m.  
tall, fls. blue-violet

tufts

awns purple

shrub 1 m. tall.

small tufts.

tufts

spreading, petals  
white, much shorter  
than calyx, bifid, lobes  
entire.

small tree 5 m. tall  
10 cm thick, fls. white.  
tufts.

fls. orange-yellow.



- L 22196 *Galium*  
 common in clumps of bushes  
 at base of slope  
 L 3 97 *Polytrichum*  
 common in patches on rocks  
 L 3 98 *Grass*  
 common in crevices  
 L 3 99 *Polypodium*  
 common in crevices  
 22200 *Andropogon*  
 common in crevices  
 01 *Cheilanthes*  
 common in crevices  
 02 *Polypodium*  
 common in crevices  
 03 *Wissadula*  
 rare at foot of slope  
 04 *Vernonia*  
 common on and at foot of slope  
 05 *Helaginella*  
 common on slope  
 06 *Viola*  
 on soil at foot of slope  
 07 *Urena*  
 on bare rocks upper slope  
 08 *Eragrostis*  
 by roadside

Nov. 8 - Socha, valley of  
 Rio Chucamocha 1900-2900 ft  
 hill of decomposing  
 sandstone, moderate slope  
 09 *Hypericum*  
 abundant

- erect to prostrate, tangled  
 in bushes, roots orange,  
 fls. greenish white.  
 cushions  
 loose tufts  
 fronds erect, gray.  
 small tufts  
 tufts  
 fronds very erect  
 erect suffrutescent herb,  
 up to 1 m. tall, fls. yellow  
 shrub up to 0.7 m. tall,  
 fls. lavender-purple.  
 loose mats  
 gelatinous  
 spreading tufts  
 cut over land, now mostly  
 sparse bush resembling  
 subparamo, little soil remaining.  
 shrubs up to 1 m. tall,  
 sparsely branched, fls. orange-yellow  
 leaves conspicuously 4-nerved, "chita".



- 2210 *Pellaea ternstroemia*  
rock crevices
- 11 *Borreria*  
abundant
- 12 *Bulbostylis*  
rare
- 13 *Vaccinium*  
occasional
- 14 *Euphorbia*  
common
- 15 *Polygala*  
occasional
- 16 *Polygala*  
occasional
- 17 *Dichromena*  
common
- 18 *Evolvulus*  
occasional
- 19 *Borreria*  
~~occasional~~ common

small tufts

usually erect, fls.  
white, not pilose within.  
small tuft

depressed, spreading  
stiff bushes, 1-3 dm.  
high, fls. pink, fruit blue.  
prostrate, stems red,  
glands white to pink.  
this and #22210 look the  
same except in stature  
and the fact that in  
this the flowers are  
purplish white to  
purplish pink. Roots  
have faint wintergreen  
odor.

this and #22215 look the  
same except in stature  
and the fact that the  
flowers are white,  
only the youngest buds  
having a trace of ~~purple~~ pink.  
Roots have faint wintergreen  
odor.

small tufts, bracts  
white at base, spikelets  
white.

prostrate, fls. about 1 cm.  
across, bright blue

prostrate or ascending,  
fls. white purplish without,  
pilose within.



22220

C. 100

occasional on disturbed top  
of hill.

same but various habitats

21 *Prunus* ~~serotina~~

growing in yard

22 *Berberis*

talus below road on sparsely  
bushy slope

23 *Duranta*

talus below road on sparsely  
bushy slope.

24 *Salix humboldtii*  
edge of field

25 *Borreria*  
edge of marsh

26 *Borreria*  
talus below road

27 *Juncus bogotensis*  
scaps and marsh

fls. yellow, involueral  
bracts maroon distally  
and marginally.

tree 5 m tall, fls. white,  
fruit immature  
rounded bush 2 m tall,  
leaves white beneath,  
ripe fruit ~~fl~~ blue.

~~fl~~ rigidly branched  
bush 2 m tall, leaves  
dark green, fls. white,  
fragrant, tube curved,  
fruit immature

"*espinosa negra*"

this form grows very  
tall and erect with a  
habit like lombardy  
poplar, but with the  
soft tips of the branches  
drooping. trunk

white until 1.5 m. in  
diam. with large  
triangular branch scars.  
prostrate, forming an  
extensive mat. fls.

white, not pilose  
within, anthers blackish.  
prostrate, forming a  
mat from central root.  
fls. white, pilose within  
purplish without.

clumps - mass collection  
taken from different clumps, 1 had early



✓ Nov. 10 - Buenavista, headwaters  
of Rio Panto bet. Guacharo Laja (P. Colorado)  
and Rio Panto, 30 km. s. of I. of Lacha. 8800-9100 ft.  
cloud-forest, steep slopes

22228 *Cinchona officinalis* L.

29 *Cybianthus cuneifolius* (May) Agostini <sup>det. J. Agostini</sup>

30 *Cinchona officinalis* L. <sup>9000'</sup>

L 6 31 ~~along trail~~  
along trail

4 32 *Nertera granadensis*  
along trail

2 33 *Nertera granadensis*  
along trail, exposed place

8 34 *Sphagnum*  
on earth banks, along  
trail on ridge.

4 35 *Polytrichum*  
vertical earth banks

~~sample~~ *P. bat* small patch

5 36 *Cinchona officinalis* L.

from tree harvested several  
weeks ago.

shrub 2 m. tall.

sapling 4 m. tall,  
2 cm. thick, stipules  
turning reddish (bark sample)  
scrambling shrub,  
lvs. rugose, fls. red in  
upper half, lower half  
deep pink, anthers  
bluish, column whitish  
(from several plants)

prostrate, fls. yellowish  
green, fruit scarlet.

prostrate forming a  
mat fls. yellow green,  
fruit scarlet.

~~leaves~~ soft cushions,  
bright rose color  
(note fruit)

forming sparse  
cushions.

2900'  
sapling 4 m. tall, 3 cm. thick  
near base, midrib becomes  
reddish when old, network  
of veins conspicuous (bark sample)  
laminate compressed above.



same date & loc. small rocky  
peak with bushy  
subparamo-like vegetation  
22237 *Vaccinium*  
common around upper  
edges of forest

38 *Vaccinium*  
common

39 *Vaccinium*  
only one seen, in deep ~~the~~ root-  
filled humus

40 *Vaccinium*  
on ericaceous shrub # 22237

41 *Hertera granadensis*  
on earth banks

42 *Paepalanthus*  
common on rocky banks  
and ledges

43 *Sphagnum*  
common on banks

44 *Weinmannia*  
common

45 *Asplenium*  
common

46 *Asplenium*  
common

bush up to 0.5 m. tall,  
fls. pink, especially  
at mouth, fruit translucent  
white.

tiny erect shrub, fls. red. fruit  
translucent white  
erect, fls. bronze-red.

bronze green, fruit translucent  
white.

prostrate, fls. yellowish  
green, fruit scarlet.  
single or slightly  
caespitose fls. white  
with blackish involucre  
cushions, rose colored.

shrub, somewhat  
spreading, 2 m. tall,  
fls. ~~white~~ with red  
calyx, white filaments,  
pinkish anthers, immature  
fruit red, leaves strongly  
revolute.

forming tangles on  
ground and by small  
shrubs, dark maroon  
bronze.

tangles shrub up to 0.5 m.  
tall, petals white, stamens  
violet.



22247

*Maya*  
common

1 48 *Maya*L 49 *Maya*

1 50

2 51

52

common around bases of  
shrubs

53 *Hedyotis nitida*  
common

same. cloud forest

1 54 *Bryum*

earth bank, in mat of hepatics

2 55 *Bryum*

earth bank, in mat of hepatics

3 56

earth bank

4 57

earth bank

shrub 1-2 m. tall, fls.  
pale greenish, fruit black,  
when ripe, leaf bases  
with reddish margins,  
old leaves red. (flowers  
& fruits from different plants)  
they shrub up to 2 m. tall,  
fruit red.

shrub up to 1 m., fls.  
scarlet.

thick cushion, golden-green,  
shrub 2 m. tall. fruits  
yellow-green, when  
open, exposing scarlet  
seeds, attached apically  
to axile placentae.  
leaf soft cushions.  
gold-green.

small shrubs, up to  
0.4 m. tall, leaves 4-ranked,  
fls. white, purplish  
without (terminal  
on racemously arranged  
branchlets) lower whitish  
beneath, thick.

cushion

leaf soft cushion



22258

base of tree

59 Hymenophyllum  
on trunk of tree

2 60 Cyperus?

mud near spring

2 61 Asplenium

moisty tree trunk

1 62 Liatrum

new clearing

Nov. 9 Quebradas. Rio Gomez (Rio  
arabuco), 10 km. e of Docha, 10000'  
roadside banks

2 63 Catharinaea

64 Bryum argenteum

Nov. 11 - "Las Mesas", headwaters  
of Rio Pauto, bet. Quebrada Laja  
(of Colorado) and Rio Pauto, 25 km.  
s. of e. of Docha.

open paramo grassland,  
very wet and marshy  
in spots, with scattered  
bushes and patches of bush  
or bushy forest.

65 Aragoa  
common66 Senecio  
common67 Senecio  
bushy slope

mat-forming

pendent

cap milky, fls. yellow

shrub 1-2 m. tall,  
fls. white, fragrant.  
shrub 1-2 m. tall,  
fls. yellow, leaves  
green  
shrub 1 m. tall, leaves  
terete, glaucous, fls. yellow.



- 722, 63 *Geranium*  
occasional, brushy slope
- 69 *Hypericum*  
common, brushy slope
- 70 *Hedyotis mutica*  
common, brushy slope  
and open places
- 71 *Hedyotis nitida*  
common, brushy slope

✓ Nov. 11 - Extreme headwaters  
of Rio Panto, near divide,  
Páramo de Laja (El Perro)  
18 km. s. of Socha

- open rocky páramo.
- L 72 *Lobelia toreni*  
earth banks, common
- 73  
common
- 74  
spreading on flat rocks
- 75 *Hedyotis nitida*  
occasional
- 76 *Poa*  
rare here
- 77 *Carex*  
one colony seen here  
in damp flat place
- 78 *Chusquea weberbaueri*  
common

- 10500 fls. pink, leaves  
turning red when old.  
fls. yellow "chite"
- ~~leaves~~ prostrate, leaves  
4-ranked, bud purple,  
fls. white inside.  
shrub up to 0.4 m. tall,  
lvs. white beneath, fl. white.  
~~fruits~~ "pija" "pija"

fls. blue-violet

forming dense cushions,  
lvs. gray-green, fls. white.  
carpets, thinner toward  
edges, closely adhering,  
grayish green.  
shrub 0.4 m. tall,  
lvs. white beneath,  
fls. white, purplish without  
tufts, infl. purple.

isolated culms or  
slightly caespitose,  
heads drooping.

ragged bunches, varying  
greatly in size, occasional  
bunches flowering.







22279

common  
80 *Bartsia*

common  
81 *Luzula*

common in rock crevices

✓ Nov. 11 - (Rio Arobispo) Rio Grande,  
above Guachadua,  
10 km. e. of Locha

sub-paramo brush in  
canyon

82 *Vaccinium*  
common

83 *Pernettya*

84 *Baccharis*

85 *Senecio*

86 *Senecio theca argentea* (Mutis) Raf.  
common

87 *Senecio (gynoxys)*  
common

88 *Weinmannia*  
occasional

89 *Vicia*  
rare

90 *Calceolaria hispida* Pennell det. Wundtke  
common locally

isolated plants, rosettes  
gray, fls. white,  
heads bright deep purple

heads pendent  
tufts small

bushes 1-2 m. tall, leaves  
stiff, flowers crimson,  
berries blue, but no  
mature ones seen.

bush 1 m. tall, leaves  
reticulate beneath,  
fls. white.

shrub 1.5 m. tall, heads  
whitish.

shrub 2 m. tall, lvs.  
green, fls. yellow.

silvery bushes, 2 m. tall.

bushes 2-3 m. tall,  
fls. yellow, rays present  
but not large.  
small tree 4 m. tall

climbing in bushes  
to 2 m., fls. blue  
rosette shrub up to 2.9 m. tall,  
in bush, fls. bright yellow



22291 *Vallea stipularis*92 *Vallea*93 *Baccharis*  
common✓ Nov. 11 - slope south of  
Rio Gomeza, ~~but~~ (Rio Andisipo)  
~~and Rio Gomeza~~, 7-10 km. e.  
of Loricacleared rocky slope  
with bushy ravines  
and scattered bushes.94 *Mutisia*  
occasional95 *Galium hypocarpium*  
occasional, rocky place,  
foot of great boulder.96 *Borreria*  
occasional, foot of great  
boulders97 *Phytolacca*  
roadside

98

rare, foot of great boulders

tree 5 m. tall, fruit green,  
fleshy, processes thick,  
blunt, shorter than wide.  
herb 1.5 m. tall, fls. white,  
herbage aromatic.  
shrubs 2 m. tall,  
fls. whitishvine climbing over  
large shrub, heads  
pendent, rays scarlet,  
head somewhat zygo-  
morphic.prostrate, fruits  
fleshy, orange.prostrate, fls. white,  
pilose within.depressed, much-  
branched succulent  
herb, fls. pink. fruit  
not quite mature  
erect suffrutescent  
herb, 1-1.5 m. tall, rays  
white.



- 22299 *Elaphoglossum*  
crevices of great boulders  
22300 *Asplenium*  
rock ledge, rare

01

vertical rock face

02

*Polypodium*vertical face of boulder,  
also ledges.

03

crevices in great boulders  
with clumps of orchids.

04

*Polypodium*

rock ledge, with #22305

05

*Polypodium*

rock ledge, with #22304

5 06

*Cordia*

roadside

1

side of  
Nov. 11 - ~~Trinité~~ Valley of Rio  
Gomez, 6 km. e. of Locha

07

*Tagetes*

common roadside weed

08

*Polymnia*

near habitations

09

*Bocconia*

rocky bench above stream

erect, fronds coriaceous

gray

fronds not erect, not  
as stiff or thick as #22306.  
fronds erect, stiffer  
and thicker than #22304.  
rounded shrub 2 m. tall.

herb 1 m. tall, very  
strong odor but not  
quite so unpleasant  
as in most *Tagetes* species.  
fls. bright yellow.  
this is giant herb, 5 m.  
tall, 10 cm. thick near base.  
shrub 2.5 m. tall,  
leaves gray-green,  
whiter beneath,  
inflorescences pendent,  
fruit not quite mature,  
orange latex oozing slowly.



22310

Alnus

bank above stream, summit

4 11

~~at the~~ bank above stream

Nov. 11 - Road beyond Doña  
valley of Rio Gómez, Boyacá

An interesting series of  
sandstone cliffs  
bet. 9000' & 10000' alt.

along this road are the  
habitat of literally tens of  
thousands of specimens  
of 2 species of bromeliads -  
an *Aechmea* and a  
*Puya*. The *Aechmea*

✓ Nov. 12 - lower hills  
above Sabana de Bogotá just  
north of Usaquén, where  
the La Calera Cableway crosses  
highway, Cundinamarca  
subparamo bush 9700-9800'

12

Palicourea

flat ridge-top

with  
W. H. Drew

tree 6 m tall, leaves  
mostly damaged.

bush 2 m., fls. pink,  
fruit black, stamens  
with filaments  
apparently fused in  
a ring toward base.

is solitary, the vase-like  
rosettes erect, plastered  
against the bare sandstone  
wall, without the support  
even of a crevice. The  
*Puya* is caespitose as  
usual. On broken  
boulders from the cliffs  
are great clumps of orchids,  
of several genera but  
principally one with very  
thick leaves. Several ferns  
also occur here.

A secondary sub-paramo  
vegetation almost regaining  
forest conditions, but with  
soil mostly eroded  
off.

shrub 2 m. tall, buds  
yellow-green, turning white  
as flowers open, flowers  
then turning dull purple,  
infl. pendent, yellow.  
fruit green.



22313

Euphorbia

eroded per trail, in sterile soil

2 14

Myrsine

slope

1 15

slope

4 16

slope

1 17

in trail, rare

4 18

Clusia

flat ridge top

6 19

Clusia

flat ridge top

3 20

Andropogon

flat ridge top

1 21

Lleria

flat ridge top

4 22

Lynilax

flat ridge top

3 23

Palisaura

flat ridge top

6 24

flat ridge top

6 25

Diplazium

abundant on slopes

6 26

Morina

occasional on slope

prostrate

small tree, 4 m. tall,  
fruit black.very slender, scarcely  
branched shrub, 2 m. tall,  
fruit black.straggling shrub 1 m.  
tall, fls. white, stamens  
rose purple, fruit white,  
fleshy.

fls. white, very zygomorphic

shrub 2 m. tall,  
exuding aromatic yellow  
latex when broken,  
fls. greenish. ♂small tree 6 m. tall,  
exuding aromatic yellow  
latex when broken.  
~~erect~~ erect branchesshrub 1.5 m. tall,  
infl. dull pink, pendent.  
tough vine climbing  
over bushes, fls. greenish white.  
bush 2 m. tall, infls.  
and fls. deep bright  
red-purple.stiff bush 2 m. tall,  
fls. pinkish white fruit greenshrub 2 m. tall,  
rays white.  
shrub 1.5 m. tall,  
fls. indigo purple



27327 *Gaultheria*  
slopes

28 *Hedyotis nitida*  
slopes

29 *Viburnum*  
slopes

30 *Palicourea*  
flat top of ridge, common

Nov. 22 - Quindío Pass,  
west slope, highway  
above Calarcá, Caldas  
cleared slope with 2700 m.  
scattered trees, mostly  
*Quercus humboldtii*

31 *Quercus humboldtii*

32 *Cinchona pubescens*

1 tree seen, sprouts of others

33 *Samanea*  
no tree seen

Nov. 23 - Pescadero, 10 km. W. of Mocoa, Cauca  
sterile, eroded plateau of red sandstone

34 *Ladenbergia magnifolia*  
abundant in ravines

*Candina macrophylla* - <sup>41</sup> Cauca

shrub 0.7 m. tall, fruits  
white tinged with purple,  
fleshy.

shrub, 0.3-1 m. tall,  
leaves white beneath,  
fls. white, purplish  
outside.

shrub 3 m. tall with  
long branches, abundant  
clusters of blue fruits,  
fls. white.

shrub 0.6 m. tall,  
fls. white, fruit  
orange-yellow.

tree 10 m. tall.

tree 4 m. tall, 10 cm. thick,  
sterile, leaf veins becoming  
reddish, old leaves bright  
red, stipules somewhat  
recurved, terminal bud  
glutinous. (bark sample)

tree 5 m. tall, fls. green,  
ribs of fruit purple (as  
in *Solanum melongena*),  
enlarged calyx yellow.

tree 5 m. tall, others much  
larger (seed sample)



Nov. 24 Finca of Enrique  
Mosquera, km. 4 of  
Popayan

Mosquera has a fair sized  
finca of rolling plateau land,  
with several streams. The  
soil seems to be rather  
acid, judging from the  
vegetation. It has a black  
surface layer that must  
be fairly good. The forest  
patches that remain  
are largely Weinmannia  
of 2 species, Vismia sp.,  
Miconia of at least 2 sp.,  
some Cinchona pubescens,  
Palicourea, etc.

The ~~the~~ F.L.G. Cinchona  
nursery is here, as well  
as a small plantation  
of Ledgeriana hybrid  
Cinchona sent by B.Y.  
Morrison to Mosquera.

The latter, 1800 seedlings  
were mistreated sadly  
at first, when I saw them  
in Oct. 1943, they were  
scarcely surviving.  
Bill Davis suggested  
removing the ball of  
Sphagnum from the roots,  
which was done.

The plants are now

from 3 to 8 dm. tall,  
with hard woody  
stems and healthy  
firm leaves. They  
do not seem to be too  
fast-growing. They  
have all been pruned  
to a single stem.  
They look quite variable,  
and obviously have  
a certain amount of  
C. pubescens in their  
predominantly C. officinalis  
ancestry.

Mosquera has  
transplanted them all  
into a ravine with  
sides with about 25-30°  
slopes. They are planted  
in holes 1 m. square and  
1 m. deep, filled 70 cm.  
with green vegetable matter  
and 30 cm. with top  
soil, then allowed to  
stand 3 months before  
planting.

At present the plants  
are in open sun, but  
M. has planted bananas  
between them for shade,  
but they are only starting  
to grow. He will later  
plant Bixa orellana.  
The plants are spaced  
at least 4 m. apart.



✓ Nov. 24 - Finca of E. Mosquera,  
1 km. -

n. of Popayan. Cauca 5700 ft.  
thin second growth woods  
on acid soil, rolling  
plateau.

22335 Weinmannia  
common

8 36

one tree seen

The holes don't seem  
to be collecting standing  
water, probably because  
the subsoil is porous.

He has taken all the  
branches pruned off the  
plants and stuck them  
in the soil to root. A  
fair percentage have  
taken hold.

The F.E.A. ~~manzana~~  
established by P. J. Coffin,  
occupies a piece of ground  
about 100 m. by 35 m. (about  
1/3 hectare). For this is paid  
a rental of 100 pesos a month.  
Land in the vicinity is  
worth about 100 to 150 pesos  
a hectare.

There are 27 beds, ~~25~~  
1 m. wide, 12 of them 25 m.  
long, the others 27 m. long.

tree 5 m. tall, 8 cm. thick,  
leaves dark green above,  
pale below.

spreading tree, 6 m. tall,  
fls. <sup>green</sup> in pendant panicles  
from larger branches.  
(fruit said to be red, fleshy,  
several cm. in diam.)

They are surrounded  
by an 8 inch board,  
partially filled with  
leafy soil, the rest filled  
up in various ways.  
They have been ~~planted~~  
in various ways and  
at varying times. They  
are numbered consecutively  
and may be briefly described  
in order.

Bed #1) Luccinbra, 2 g. seed per sq. m.  
planted July 15 - manure,  
humus & sphagnum -  
dense stand plants up  
to 3 cm. tall, healthy.

1.5 g. seed per sq. m.  
2) pubescens (local), planted Feb. 10  
- local black top soil only -  
not one plant per square foot. 3-6 cm. tall

sphagnum  
above used,  
about 1 cm.  
seeded  
sugarcane  
beds 14-16



- Bed #3) *Luccimbra* -  
Planted June 24 - humus, manure  
sphagnum - good stand,  
plants up to 30 cm. tall.
- #4) same but no manure -  
plants twice as vigorous
- #5) *pitayensis* - 3 g. seed per sq. m.  
planted Feb. 24 - humus  
+ sphagnum - poor stand,  
plants up to 15 cm. tall,  
with 6 pairs leaves, some  
so young as to have only  
2 pairs of leaves. Plants  
vigorous, large root  
systems.
- #6) *Luccimbra*, 2 g. seed per sq. m.  
planted June 12 - humus  
+ sphagnum - very dense  
stand, plants up to 10 cm.  
tall with 5 pairs leaves,  
very irregular in size.
- #7) *pitayensis*  
planted March 14 - humus  
+ sphagnum - dense, fairly  
even stand up to 15 cm.  
tall, healthy but rather  
spindly plants.
- #8) *pitayensis* 3 g. seed per sq. m.  
planted Mar. 11 - same as #7 but smaller  
plants and much poorer stand

- #9) *pitayensis* 3 g. seed per sq. m.  
planted Mar. 13 - same as #8 but better  
stand, smaller plants.
- #10) *pitayensis* 3 g. seed per  
sq. m. planted Mar. 10 -  
humus only - good  
stand, plants healthy  
but spindly up to 15 cm. tall
- #11) *pitayensis* - 4 g. seed per sq. m.  
planted Mar. 29 - humus only  
about like #10 but stand  
more uneven.
- #12) *pitayensis* - <sup>planted Mar. 31</sup> same as  
#11, plants very uneven,  
1-20 cm. tall.
- #13) *pitayensis* - planted Apr. 3  
- poorer, more uneven  
stand, plants smaller.
- #14) *pitayensis* - 4 g. seed per sq. m.  
planted Apr. 2 - humus and  
deep layer of sphagnum - ~~the~~  
after settling - very poor  
stand, small plants 2-4  
cm. tall. Obviously too much  
sphagnum.
- #15) *pitayensis* - same as  
#14. plants healthy,  
mostly small, but some  
large.



Bed #16) *pitayensis* - 6 g. seed per sq. m. planted May 6. - about like #14, poorer stand, smaller plants in most of bed.

#17 *succinbra* - 2 g. seed per sq. m. planted May 23 - humus + sphagnum - very dense stand of plants up to 15 cm. tall, but apparently still germinating. Only one strip of cloth on north side.

#18) *succinbra* - 2 g. seed per sq. m. planted May 24 - humus + sphagnum - very dense stand but plants about 1/3 size as in #17. 2 strips of cloth, as in all following beds.

#19) *succinbra* planted May 30. same as #18.

#20) *succinbra* - same as #18, planted June 14. plants sl. smaller than #18, 2-5 cm. tall.

#21) *succinbra* - same as #20 denser but more uneven stand, smaller plants.

#22) *succinbra* - same as #21, but planted June 16.

#23-24) <sup>25)</sup> *succinbra* - same as #22 but less even and less dense stand. humus ~~uneven~~ <sup>no sphagnum</sup> #24 has seedlings smaller average size.

#26) *succinbra* - planted June 22 - humus screened, no sphagnum. better stand & taller plants than #23-25.

#27) *succinbra* - planted June 30, same as #26 but stand very uneven.

Most of the *L. pitayensis* seed comes from between Lillovia and Tacueyo.

Coffin tried drying seeds in driers at 55°. No germination. Kichi dried them at room temp. till they started to open, then in sun. Gave good but uneven germination even though they were green and soft to start with. No selection was made.



Orientation of seed beds nearly east and west. Thin roof about 2 m. high on N. side, 0.4-0.8 m. on S. side. N. side and ends closed with one or 2 strips of cloth 1 yard wide.

Along one end is a bed with about 250 young *P. pitayensis* trees 3-6 dm. tall, mostly healthy, transplanted from Quintana. Shaded with a roof of poles + fern leaves, not thick, ~~about~~ 1.5-2 m. high, sides open.

I don't understand the fact that in all but one bed the stand is poor in the 1 m. at the west end, and in all of them there are few plants ~~at~~ in the 1-2 dm. next to the north (front) edge of the bed.

Dr. John Geib has made an estimate of the no. of plants as follows:

*Surcinuba* - 517,500  
[this is probably somewhat low]

*Pitayensis* - 114,500  
[about right]

*Local pubescens* - 1500  
[much too high]

*Pitayensis* cuttings 250

Mosquera's *liger* plant, 500-700  
[much too high, Kichii says 250 at most]



114 ~~Nov. 26~~ - Headwaters of Rio San Francisco, above Purace, north of Volcan Purace, Cauca ~~subparamo~~ 11000' open paramo plateau

22337 *Acaena*  
common, even more abundant at lower altitudes

2 38 *Diploplop*  
occasional in bushy patches

2 39 *Lisyrhinium*  
occasional on open slopes

3 40 *Cladonia*  
covering sloping rocks

4 41 *Polytrichum*  
common on open earth bank

34 ~~Nov. 26~~ - Divide bet Cauca and La Plata drainages, north of Volcan Purace, near Laguna San Rafael, Cauca  
Marshy paramo, rather bushy in spots, flat 11200 ft.

2 42 *Vaccinium*  
occasional

3 43 *Senecio*  
common

2 44 *Rumex acetosella* L.  
abundant in patches

3 45 *Senecio*  
occasional

det.  
R.C.F.

low ragged shrub,  
spines on fruits reddish.

slender erect shrub  
2 m. tall, rays violet

tufts, fls. yellow

A small paramo, as far as I could see, rather broken and interspersed with wooded ridges - mostly the flat places open. *Hedyotis* not seen, though looked for.

low bush from a prostrate woody stem 3 cm. thick. fruits blue, sour.

fls. reddish

heads nodding, involucre maroon, rays bright purple "arnica".



22346

only seen, edge of ravine

47 *Asium*  
common48 *Luzula*  
occasional, especially  
in ravines49 *Bartsia*  
common50 *Nertera granadensis*  
common, forming a mat  
down between other plants51 *Galium hypocarpium*  
common52 *Rubus*  
occasional53 *Polypodium*  
occasional, in dense low  
vegetation on edges of ravine

Nov. 26 - ~~Barbada~~ <sup>Barbada</sup> ~~headwaters~~  
of Rio San Rafael, drainage of Rio La Plata,  
Volcan Purace, Cauca attila (boundary  
in dispute) 10000 m  
Rocky <sup>sub</sup> páramo slope

54 *Centropogon ferruginea*  
occasional

shrub 1.5 m. tall, fls.  
white, 4 parted, sub-rotate,  
stamens 4, incurved so  
that the anthers are almost  
connivent, alternate  
with corolla lobes.

herb varying in height  
with vegetation,  
up to a meter, ~~fls.~~ herbage  
with oily odor when  
broken, fls. white  
infl. drooping

herb up to 1 m. tall,  
branched, bracts and  
fls. dull lavender-purple.  
prostrate, slender,  
fruits red.

prostrate or climbing  
on other plants, fruit  
orange, fleshy.

fls. bright <sup>deep</sup> pink

lvs. rugose  
rhizomes loosely crawling  
through grass, not on ground.

small shrub, corolla deep orange-red,  
column whitish, anthers gray,



22355 *Chusquea roeberbaueri*  
common, in places dominant

56 *Valeriana*  
common locally

57 *Alchemilla*  
common

58 *Ribes*

rare

59 *Solanum*

Nov. 20 - <sup>Hot Springs & sulfur mine</sup> small tributary of ~~San Rafael~~ <sup>San Rafael</sup>, headwaters of Rio (San Rafael) n.e. of Volcan Purac, Cauca (or Huila), (boundary in dispute) 10500 area of 1-2 hectares in small valley filled with hot, warm & cold springs charged with sulfur or iron, reaching with  $H_2S$ .

60 *Rhynchospora*  
common in patches

61  
abundant on wet peat

62 *Sphagnum*  
abundant on wet peat

63 *Equisetum*  
edges of ~~stream~~ of stream,  
iron oxide mud

ragged clumps, up to  
1.5 m. tall, not all in  
flower.

low tangled masses,  
odor unpleasant - like  
sweaty feet - fls. white,  
stems reddish.

fls. dull reddish

erect, fls. violet, fruit dull <sup>purple</sup> blue.

bubbling up through  
a bed of peat a meter  
or more thick, ~~so~~ firm  
in spots, soft in others.  
Free sulfur deposited in  
run-off. Vegetation  
scanty, few species -  
a moss and a *Sphagnum*  
have formed most of the  
peat. *Rhynchospora* forms  
large patches, also *Distichlis*  
sp. & *Puyo* sp.  
clumps

forming large beds and  
cushions, saturated,  
appearing gelatinous,  
large soft cushions



22305 ~~Dist. ignea~~ *Pernettya*  
common on peat

9 66 *Vaccinium*  
common locally on peat

5 67 *Orch.*  
common locally on peat

4 69 *Senecio*  
common on peat

Nov. 26 - near Tejira, Moscoyan,  
about 4 km. 50 on Moscoyan  
highway, drainage of Rio  
La Plata, Cauca or Huila, 7800'  
clearing filled with  
deep weedy brush &  
tree trunks. Surrounding  
forest of mossy, cloud  
forest type.

1 69 *Nertera granadensis*  
abundant on ground

3 70 *Centropogon hartwegii*  
common

8 71 *Cinchona pubescens*  
occasional

The enormous inflorescences  
may be because they are  
on sucker shoots.

fls. pinkish, fruits dull  
white, some bushes up to  
1 m. tall.

- very prostrate, fls.  
pink, petals 4, fruit red.  
- fls. pink, dotted on the  
limb with red-purple.  
bushes 0.6 m. tall, fls.  
yellow.

an erect hollow bamboo is common  
here, culms 2-3 cm. thick,  
4 m. tall, erect, lvs. wide,  
branches in tufts as  
in Chusquea but tufts  
in apparent whorls,  
sheaths several at  
node, imbricate, but  
apparently distichous,  
conspicuous fringe of  
fibers forming ligule of  
sheath. Sterile so didn't collect it.

- prostrate, forming a  
mat, fls. yellowish green,  
fruit translucent red.  
- weak scrambling  
shrub,

tree that had broken or  
rotted off about 4 m. up,  
then sent out ~~new~~ shoots,  
these now flowering.

Veins red, leaves somewhat  
glossy above, flowers fragrant,  
red without, pink within, hairs  
white. stipules recurved or revolute.



- 12 ✓ Nov. 20 - Santa Leticia, about  
km. 54 on Moscoyan highway,  
drainage of Rio La Plata,  
Cauca & Huila (boundary in dispute)  
partially cleared 7200'  
mossy forest.

22372 *Vaccinium*  
epiphytic on *Cinchona pubescens*

- 73 *Palicourea*  
common in undergrowth  
throughout region

- 74 *Cinchona pubescens* Vahl.  
occasional

- 21 ✓ Nov. 26 - Roblal, near km.  
53 on Moscoyan highway,  
drainage of Rio La Plata,  
Cauca & Huila (boundary in dispute)  
open, Chusquea filled 8000'  
forests on steep slopes.

- 75 *Palicourea*  
common in woods at base of trees

- 76 *Palicourea*  
occasional

- 77 *Cinchona officinalis* Nees  
occasional

The *C. pubescens* here  
is easily distinguished from  
that at higher altitudes by its  
dull, hairy, elliptic leaves and  
erect stipules.

clump with vertical  
pendent branches, leaves  
fleshy, stiff, funnel-  
shaped with flowers  
down inside, corolla pale  
green, ellipsoid-cylindrical  
shrub 3 m. tall, infl.  
maroon, calyx dull  
dark purple, corolla  
dull gray-lavender,  
fruit blue.

tree 6 m. tall, 10 cm. thick,  
leaf veins red, stipules  
erect, carinate.

small tree, fls. whitish

sapling 4 m. tall, 3 cm. thick,  
sterile (bark sample) bark  
with rusty fissure lines  
stipules pale, small.



22378

*Ladenbergia macrocarpa*  
common in woods, almost  
up to páramo.

4 79

*Chusquea*  
abundant throughout  
region

80

*Vaccinium*  
occasional, bush above road

4

Nov. 28 - 5 km. s. of Buga, Valle  
del Cauca. 1000 m.  
thickets along road, flat valley floor

81

*Euphorbia cotinifolia*  
abundant weed tree

82

*Euphorbia cotinifolia*  
abundant weed tree

7

Nov. 23 - Range of hills 3 km. n.e.  
of Bugalagrande, Valle del Cauca  
steep, eroded, cleared hillside 1250 m.

83

*Chusquea*  
large colony on slope and in  
patch of woods below

84

*Chusquea*  
large colony

Nov. 23 - Sevilla, Valle del Cauca

85

*Euphorbia cotinifolia*  
fence-line tree, probably planted.

tree 8 m. tall, 10 cm. thick,  
fls. white, fleshy, very  
heavy fragrance.

— dense tangles of arching  
canes 2-3 m. ~~deep~~ deep,  
flowering throughout  
region at least 10 km.  
across, spikes blackish.  
— shrub 1 m. tall, leaves  
thick, flat, calyx with  
lobes green basal wings  
red.

small tree 3 m. tall, latex  
abundant, said to be  
poisonous to skin but with no  
effect on back of  
my hand.

long slender pendent  
canes hanging down  
slope, all plants observed  
~~fls.~~ fruiting except one (#22394)  
all plants except this one  
were fruiting.

leaves dull deep purple, spotted  
with green, color varies on different  
plants. Tree 5 m. tall, latex said to be  
poisonous to skin.

This  
plant is  
very common  
in the area



✓ Nov. 29 - Guindío Pass, west  
slope below Depression, Caldas  
thickets along road, 10500'  
sparse woods.

✓ 22386 *Chusquea*

✓ Nov. 29 - Depression, summit  
of Guindío Pass, Caldas - Tolima  
boundary 11400'

✓ 87 *Nertera* ~~Thibaudii~~  
exposed crest, turfey banks  
with low wind-beaten  
bushy vegetation, common.

✓ 10 <sup>88</sup> ~~87~~ *Polytrichum*  
vertical bank on exposed  
bushy windswept crest.

✓ 89 *Hepatic*  
Nov. 29 - 5 km. <sup>about</sup> west of Chicorot,  
up the Rio ~~Culla~~ just west  
of 2nd range of hills, Tolima  
flat, dry, bushy thicket 1700'

✓ 89c *Landia*  
common

✓ 89a *Moss*  
Exposed crest

✓ 89b *Uncinaria*  
Exposed crest

tangled in brush, all  
fruiting for a km or more  
along road.

prostrate, forming mats  
fls yellowish, fruit  
red, fleshy.

~~stiff~~ stiff shrub 3 m tall,  
branches long, appearance  
conifer-like from a distance,  
fruit green.



Dec. 10, - Barris San Cristobal,  
Bogota, Cund. 7700'

~~clay~~ clay pit with pools  
of water, grazed by donkeys

22390

Lolium

91 Baccharis

forming small thickets

92 Eupatorium

common

93 Laronychia

common on bare clay slopes  
and vertical faces

94 Juncus

rare, ~~in~~ rock crevice

95 Chenopodium murale

96 Malva parviflora

~~rare~~ occasional

97 Malva

occasional

98 Spergularia

occasional

99 Eleocharis

around muddy pools

22400

Mixed collection. Conyza sumatrensis (Ritz.)  
E. Walker + Conyza bonariensis  
(L.) Cong.

101 Plantago

common

102 Lepidium

occasional

herb 1 m tall, fls. white  
~~with~~ tinged with purple  
outside, fruits green +  
gray variegated when  
immature, yellow when  
ripe.

shrub up to 1.5 m. tall,  
fls. whitish,  
small bushes, fls. purple

on bare clay slopes and  
vertical faces. prostrate

grayish green

fls. pinkish-white.

leaves terete, fleshy,

large clump

erect, involueral  
bracts purple-tipped.  
varying greatly according  
to habitat.



22403

C. 22403

shade of bank, rare

5 04

*Solanum ~~virgatum~~*  
common

5 05

C. 22405

common

5 06

*Crotula coronopifolia*abundant, especially  
around muddy pools

7 07

*Rumex obtusifolius* <sup>ssp. *agrestis*</sup>  
<sub>(*R. flammula*)</sub>

abundant

7 08

*Polygonum punctatum* Ell.common, especially  
in muddy  
depressions

2 09

*Chenopodium ambrosioides*

common

1 10

C. 22410

occasional <sup>in damp</sup> grassy spots

6 11

*Gnaphalium*

common

2 12

*Aster*

rare

5 13

*Gnaphalium*

common

flowers yellow, inner

bracts maroon.

rank spreading herb,

fls. purplish.

fls. yellow, rays short.

heads yellow, lvs.

succulent

stems reddish, fls.

white. Spreading

herb, rooting at nodes.

odor rank

prostrate, fl. with tall

throat yellow, limb

white with purple stripes.

leaves glabrous and

green above, as distinct

from # 22413, with which

it grows and does not

apparently intergrade

with, at least in leaf

shape and the green upper

leaf surface.

rays white, disk turning

reddish, bracts maroon.

leaves arachnoid-sericeous

above, as distinct from # 22411,

with which it grows and does

not intergrade at least

in leaf shape and hairy

upper surface.



22414 *Polygonum segetum* HBK det. n.c.f.  
rare

Dec. 23 - Valley of Risquellabamba, w. of  
Tumbaco, e. of Quito, Pichincha 8000'

L 3 15 *Hedyotis*  
roadside bank in ravine, common

Dec. 24 - lower slopes of Volcan  
Pichincha, just above Quito, Pichincha  
ledges and vertical banks  
in bottom of canyon 9500'

L 1 16 *Hedyotis*  
crevice on rock wall

L 7 17 *Lepidium*  
ledge

L 2 18 *Alchemilla*  
ledges

L 4 19 *Drymaria*  
rock crevices and bushy  
spots on vertical walls

L 2 20 *Helaginella*  
vertical shaded rock faces

L 2 21 *Hymenophyllum*  
shaded rock face

L 3 22 *Cotula*  
earth ledges

L 4 23 *Apium leptophyllum*  
earth ledges

flowers bright magenta  
pink. "barbasco"

caespitose clumps, fls.  
white.

fls. white, buds tinged  
with reddish distally.  
tangled herb

prostrate, pendent over  
edge of ledge.  
tangled with other  
vegetation, fls. white.

very prostrate, adhering  
to rock, spreading from  
center, with older parts  
dying. rhizome conspicuously  
glaucous, frond very soft.  
center of disk yellowish



Cultivated plants observed in  
Quito (not collected)

*Hedera helix*

*Passiflora mixta*

*Thuja orientalis*

*Grevillea robusta*

*Tropaeolum majus*

*Centaura cyanea*

*Oxalis martiana* (?)

*Rosa*

*Chamaecyparis humilis* (?)

*Antirrhinum majus*

*Fileno armeria* (?)

*Pelargonium*

*Pinus* (at least 2 sp.)

*Cupressus*

*Cynoglossum amabile*

*Platanus occidentalis* (diseased)

*Eucalyptus globulus*

*Cedella*

*Agapanthus*

*Oreopanax* (?)

*Musa ensete*

*Phoenix canariensis*

*Tecoma ~~stans~~*

*Canna*

*Caesalpinia*

*Matthiola incana*

*Eschscholzia californica*

*Delphinium ajacis*

*Lobularia maritima*

*Tagetes*

*Zantedeschia*

*Cosmos tinctoria*

*Petunia*

*Cobaea scandens*

*Solanum* (variegated)

*Dianthus caryophyllus*



Plants observed cultivated  
in Bogota

*Acacia melanoxylon*

*Acacia baileyana*

*Acacia flouibunda* s. *dealbata*

*Eucalyptus globulus*

*Eucalyptus citrinodora*

*Dianthus canyophyllus*



Plants observed cultivated  
in Cali

*Cananga odorata*  
*Erythroxylon coca*  
*Ceciba pentandra*  
*Triplaris*  
*Spathodea campanulata*



Dec. 31 - Plants observed  
cultivated in Lima (not all)

*Ficus*

*Jacaranda*

*Kigelia*

*Gossypium*

*Meium oleander*

*Roystonea regia*

*Morus*

*Quisqualis indica*

*Sora coccinea?*

*Pelargonium zonale* hybrids.

*Zea mays*

*Acalypha wilkesiana*

*Crotopsis lanceolata*

*Bougainvillea spectabilis*

*Hydrangea japonica*

*Begonia*

*Vitis vinifera*

*Canna* var.

*Antigonon leptopus*

*Salix chilensis*

*Populus*

*Eucalyptus citriodora*

*Catharanthus rosea*

*Fraxinus*

*Quercus*

*Philox drummondii*



1944 - Ecuador

Dec. 27 - Plants observed  
cultivated in Guayaquil

*Delonix regia*  
*Schinus molle*  
*Lobelia*  
*Hesperis*

1944 - Peru

Dec. 29 - Plants observed  
cultivated in Talara & Chiclayo

*Cordia alliodora*  
*Pyrenaea granatum*  
*Prosopis*  
*Inga*  
*Casuarina*  
*Hibiscus*



Dec. 28 - Road west from  
Guayaquil toward Salinas.  
A dry bushy type  
of vegetation, practically  
leafless at present  
(end of dry season) with  
all sorts of legumes,  
*Caria* sp. (leafless  
with red infls. & fls.)  
tangled with vines.  
In low wet places  
are *Cecropia*. The  
whole dotted with  
great Ceiba trees  
in young bright  
green leaf. Also a  
lot of *Prosopis* sp.  
(called atgaroba).

Dec. 29 - West Coast.

From Ecuador border  
to Lima is a strip  
of dry lowlands such  
as I have never seen  
before. Great flats  
with either abso-  
lutely nothing or  
only a few scattered  
bushes. Great sand  
flats, some with  
crescent shaped dunes  
- moving n.e.; to the  
south, the mts. come  
closer to the ocean.  
On these are no  
plants at all, often.  
On the small islands  
off shore are no  
plants.

Along stream courses  
are large irrigated  
regions, some at  
least raising rice.  
Others probably  
maize & cotton.

It is hard to imagine  
anything as  
completely bare as  
this region in general.

Would be a good  
place to study plant  
geography reduced to its  
simplest terms.

Road runs length of it.



- Jan. 1 - Rio Rimac above Lima  
Km. 24 22 km. s.e. Lima  
Flat bottom of valley,  
hills around dry, but  
water flowing in ditches  
in bottom, much  
arundo and a grass that  
looks like a small  
Gynerium (lvs. distichous  
and erect infl.)
- 22434 Waltheria  
along roadside and ditch banks
- 25  
common along road
- 26 Chloris  
common in ditch banks

- Jan. 1 Rio Rimac above Lima  
Km. 58 60 km. s.e. Lima  
bottom and lowest slopes -  
dry rocky soil, more bare  
ground than vegetation.
- 27 Alternanthera  
flat
- 28  
common
- 29 Jatropha  
common on rock slopes
- 30 Lachnium  
valley bottom
- 31 Tournefortia  
valley bottom
- 32 Schinus molle  
most abundant shrub in valley bottom

bush forming low  
mound  
prostrate, lvs. gray,  
fleshy, fls. white.  
loosely covering ground,  
rhizomes very deep.

prostrate, prickly

low branched bare  
bush, very lactiferous.  
fls. white.  
shrub 1.5 m. tall, fls.  
whitish.  
upright shrub 1 m. tall, fls. white.  
small tree or large shrub.  
4 m. tall, fls. greenish white, panicles  
pendant.



L 22433 *Cestrum*  
valley bottom

Jan. 1 - Valley of Rio Rimac  
above Lima, km. 6.8 <sup>6.0 km. above Lima</sup>  
rock ledges near bottom  
of canyon, sparse cactus vegetation

L 3 34 *Senecio*

L 3 35 *Caesalpinia spinosa* (Mol.)  
common

L 4 36 *Baccharis*

L 2 37 *Jatropha*

L 1 38 *Oxalis*

L 1 38a *Peperomia*

Jan. 1. Valley of Rio Rimac, above  
Lima, km. 9.4, bet. Vicos and  
San Mateo <sup>8.5 km. above Lima</sup>  
talus slope, dry and rather  
low, below road.

L 2 39 *Phytolacca*

L 4 40 *Lolium*

L 1 41

Jan. 3 - Chiclayo <sup>25 km</sup>  
sand flats around airport

L 4 42

L 2 43

forming mounds in sand

shrub 1 m. tall, branches  
long and weak

shrub 1 m. tall, fls. yellow

shrub 2 m. tall, pods  
are said to be source of  
tanning material "tano"

shrub 1.5 m. tall

low branched shrub  
with bare fleshy  
stems, fls. scarlet,  
sap watery,  
stem fleshy,  
fleshy

fls. pinkish white,  
stipes erect.

prostrate, fls. purple.  
suffrutescent herb, fls.  
deep salmon.

prostrate, lvs. fleshy, fls. white.  
prostrate or depressed,  
fls. white.



Peru 1945

Jan 1 - Valley of Rio Rimac  
from Lima up to bet. Viso  
and San Mateo

The Rio Rimac has  
its sources in the  
snow fields at 16,000' and  
above, and brings, especial  
at times, a considerable  
volume of water, down  
to Lima. Much of  
this runs underground.  
At Agua Dulce, near  
Miraflores, a series  
of flowing springs  
gush out of the cliffs  
above the ocean. The  
wet cliffs here bear  
a very interesting  
herbaceous vegetation -  
Calceolaria, Adiantum, etc.

The hills about Lima  
are completely bare,  
at least the slopes.  
H



Jan. 5 - Alaoag, 30 km. s. of  
Quito, Pn. Pichincha 9400'  
raised bog in pasture,  
growing in spots, peaty but  
without Sphagnum.

L 2 44

Juncus

L 2 45

Rynchospora

L 2 46

Carex

L 3 47

Carex

dominant in quaking places

Jan. 5 - Los Alpes, drainage  
of Rio Quitasol, 5 km. above  
Gonzacota, n. slopes of Cerro  
Crahan, 35 km. s. of Quito  
Pn. Pichincha semi-cleared slopes, cut  
by ravines, originally  
dense cloud-forest. 9300-9400'

L 1 48

Phytolacca

cultivated plot

L 2 49

Galium, hypocarpium

edge of thicket

L 2 50

Cinchona

edge of thicket

L 2 51

Palicourea

small clearing

L 1 52

Lobelia

thicket, rare

L 1 53

Lobelia

patches of woods

rays white to pinkish, disk yellow,  
forming a mat on surface  
of water or thin mud.

other plants much larger.  
fls. magenta.

wine-like, fruits orange,  
fleshy.

sprout 1.5 m. tall. C. pitagoras  
found commonly nearby,  
but pubescens only seen  
1500' lower.

small tree 5 m. tall, fls.  
whitish to purple.

ripe fruits purple.

single stem, 1 m. tall.  
lactiferous, fruit reddish-  
brown on one side.

sparsely branched low  
suffrutescent herb, lactiferous,  
fls. magenta, lobes pale pink, anthers black.



L 22,454

May

wet place in clearing

L 3 55 *Manettia*

thicket, shaded

L 4 56 *Nertera granadensis*

banks, shaded and in sun

L 16 57 *Cinchona pitayensis*small patch of woods on  
edge of cliffL 11 58 *Cinchona pitayensis*  
steep bushy slopeL 1 59 *Peperomia*  
on *Cinchona* tree epiphytic

prostrate, fl. white

vine, fls. white, veins  
not visible on the somewhat  
pallid under surface of  
the leaves.prostrate, fls. greenish,  
fruit bright red, soft.  
tree 15 m. tall, 30 cm. thick  
at base, abundantly  
fruiting, barely in bud,  
some buds showing purple.  
Leaves coriaceous, glossy,  
veins prominent  
beneath, impressed  
above. Old leaves turning  
red. Bark bitter, very  
tightly adhering to trunk  
& branches. (2 bark samples  
1 from trunk, 1 from branch  
less than 7 cm. thick). (This  
tree same as yielded  
~~Martin's~~ Martin's bark sample  
#5).

9400'

stump with clump of  
sterile sprouts 3 m. tall,  
leaves glossy,  
dark brown



✓ Jan. 5 - near Ganzaquito,  
drainage of Rio Quitasol,  
north of Cerro Crazon, 35 km. s.e. of  
of Quito 7200'

steep walled valley.  
mostly dense second growth,  
up to 4-5 m tall, cut for  
charcoal.

L 22460 *Cinchona pubescens* Vahl  
edge of cliff above river,  
common in area, up to 7500'

L 1 61 *Cynoglossum amabile*  
edge of trail

L 6 62 *Philadelphus*  
steep rocky banks

L 2 63 *Cinchona pubescens* Vahl  
along trail, common

L 3 64 *Gonzalagunia*  
along trail, common

L 1 65 *Tropaeolum*  
along trail in thicket

small sterile tree 5-6 m.  
tall, 9 cm. diam. leaves  
dull above, veins slightly  
impressed above, prominent  
beneath, reddish, stipules  
erect at first, becoming  
reflexed. (bark sample)  
fls. bright blue

shrub 2 m. tall, fruits  
red-purple but immature,  
bracts reddish, corolla  
vermillion with pale  
green tips. leaves pale  
green beneath, bright  
green above with pale green  
veins.

sterile sprouts 3 m. tall,  
leaves dull above, pale  
beneath, veins reddish.  
bush 1.5 m. tall, fls. white,  
fruit fleshy, white flushed with purple  
wine, tangled in bushes,  
both petals and pedicels  
coiling like tendrils,  
thru vermillion, lobes green  
enlarged filaments black



L 2466 *Cinchona pubescens* Vahl  
small stream terrace, in tall brush,  
shaded.

~~at Dipsyros~~

L 3 67 *Cinchona pubescens*  
tall brush, shaded, on slope

L 2 68 *Diospyros*  
wooded steep slope

L 2 69 *Sal*  
steep wooded slope

Jan. 9 - Quebrada Estancia, a small  
tributary of Rio Pastaza, below  
Baños, 8 km. above confluence  
of Rio Tapa, Tungurahua  
stream terrace with second  
growth woods. 4000'

L 5 70 *Cinchona pubescens* Vahl  
shaded

L 1 71 *Cinchona pubescens* Vahl  
opening

L 6 72 *Cinchona pubescens* Vahl  
along trail

L 2 73 *Ladenbergia*  
edge of opening

L 3 74 *Ladenbergia*  
shade

~~at~~ wooded slope with  
ravine 4000-5000'

L 2 75 *Galium hypocarpium*

sterile sprout 3 m. tall, leaves  
dull, thin.

sterile sprout 1.5 m. tall,  
stipules erect, becoming  
recurved.

small tree, leaves in  
one plane on branches,  
fls. white, fruit very immature  
straggling shrub,  
fls. very deep purple.

Jan. 7 - fruits, Pichincha 4300'  
229708 *Anemone*

cult. in park  
herb 1 m. tall, fls. purplish  
pink.

small tree 5 m. tall, leaves  
green, dark & dull above,  
paler ~~at~~ beneath.

stump sprout, 1.5 m. tall,  
midrib & veins reddish.

sterile stump sprouts.

4 m. tall (bark sample)

sterile sprout 5 m. tall  
(bark sample) (not for analysis)  
tree 8 m. tall, 15 cm. thick,  
fls. white, fragrant, not  
really in season. (Bark sample)

wine, tangled in bushes,  
several m. long, fruit orange, fleshy.



- L 22476 *Carex*  
wet banks
- L 4 77 *Phytolacca*  
cleared weedy places
- L 7 18 *Cinchona officinalis*  
open low ridge between  
ravines in clearing  
(found from 4500' at least up  
to 6000' according to local  
information)
- L 3 79 *Burmeistera*  
along trail
- L 1 30 *Drymaria cordata*  
cleared ground
- Jan. 9 Rio Pastaza above Baños,  
Prov. Tungurahua 6200'
- L 1 31 *Hedyotis*  
cliffs of volcanic rock  
common from 6000' - 9000'

herbs up to 1.5 m. tall, infl.  
crimson, fls pink, ripe  
fruit black. infl. pendent  
in fruit. Mass collection,  
each ~~piece~~ piece taken from  
a different plant, scattered  
along trail.

4500'  
small sterile tree  
which had been broken  
off 1.5 m. from ground  
and had sent up several  
sprouts to 4 m. more.  
~~the~~ leaves with veins  
prominent beneath,  
impressed above,  
much like *Cornus*  
*florida* leaves, red  
when old

4500'  
herb up to 1 m. long,  
ascending, calyx purple,  
rest of flower green,  
faint skunky odor,  
stem somewhat lactiferous,  
fruit inflated, green with  
purple calyx lobes,  
prostrate.

fls. white.



Jan. 10 - hills west of Riobamba  
 toward Lican, Prov. Chimborazo  
 eroded, badly over-grazed, rocky  
 slopes 8500'

22432 *Hedyotis*  
 abundant

Jan. 10 - headwaters of Rio Grader  
 15 km south of Chimborazo Volcano,  
 Prov. Bolivar

high grassland, bunch-  
 grass and *Azorella*? hummocks  
 in dense hummocks

83 *Gentiana*?  
 clumps scattered here  
 and there in grass-land

85 *Lisymbium*  
 deep gully above road

86 *Lepidium*  
 deep gully above road

87 *Calceolaria ericoides* Vahl det. Wurdack  
 slope below road

88 *Hedyotis*  
 rocky places along road  
 (common down to 7000' or below)

89 *Hedyotis*  
 (same)

90 *Hedyotis*  
 (same)

91 *Acacia*  
 open slopes

dwarf shrubs, fls. white

13000' fls. bright rose-pink

13000' erect, branched shrub  
 up to 1 m. tall, involucres  
 golden, fls. orange.

12000' fls. red-brown and yellow.

12000'

12000' large clumps of erect  
 stems up to 1 m., flowers  
 bright sulfur-yellow.  
 fls. white, longistylous,  
 buds reddish without.

11000'

same, brevistylous

same, longistylous

11000'

depressed shrub, peduncles  
 erect.



Jan. 10 - canyon of Rio Gradas,  
20 km. south-south of Chimborazo Volcano,  
Prov. Bolivar 9500'  
deep canyon, with scattered  
woods up to 10500'. denser  
below, Podocarpus spp.  
a conspicuous component.  
22492 Podocarpus  
common from 9000' to 10000',  
more rare up to 10500'

8 93 Podocarpus  
same

3 94 Hedyotis  
common on <sup>rock</sup> ledges above  
road

Jan. 10 - headwaters of Rio  
Peyas above Balzapamba,  
6 km. s.w. San Miguel, Prov. Bolivar  
cut-over cloud forest,  
only scattered patches  
left.

10 95 Cinchona pitayensis var.  
occasional to common

10 96 Cinchona pitayensis var.  
occasional to common

small gnarled trees,  
up to 6 m. tall, seeds  
immature, fleshy receptacle  
glaucous.  
same but staminate.

dwarf shrub, buds pinkish  
without, fls. white

9200' small tree 5 m. tall,  
leaves sub-glossy above,  
petiole & midrib red,  
leaf turning red when  
old, smooth above,  
veins not impressed  
above nor especially  
prominent beneath. (bark  
sample)  
9200' small sterile tree  
(data on leaves or above)



- 22497 *Cinchona pitayensis* var.  
small patch of woods on  
steep slope

Jan. 11 - Headwaters of Rio  
Playas, above Balyapamba,  
5 km. W. of San Miguel,  
Prov. Bolivar 9200'

brushy cut-over forestland.

- 98 *Cinchona pitayensis* var.  
only tree seen here,  
more at lower elevations,  
down to 8500'

- 99 *Podocarpus*  
rare

Jan. 11 - Valley of Rio Playas,  
3.5 km. above Balyapamba,  
Prov. Bolivar 3400' - 3800'

Plantations of coffee, bananas,  
etc. wet enough to support  
considerable growth of epiphytes

3600'

tree 8 m. tall, 15 cm. thick,  
heavily puncturing, leaves  
~~glossy~~ glossy above, veins  
not impressed above  
nor prominent beneath,  
petioles & <sup>mid</sup>veins reddish,  
leaves turning red  
when old, fruits reddish  
green. (bark sample)

small tree, 5 m. tall, leaves  
glossy above, petioles and  
midribs reddish, veins  
somewhat impressed  
above, fls. dull purple  
with white hair on  
margins, tub. glabrous  
withia; fruit green, very  
scarce, most inflorescences  
completely sterile.  
tree 15 m. tall, sterile.  
"olivo".

*Cinchona pubescens*  
cultivated here, scattered  
in with coffee, also  
in low-lying. Planted from  
cuttings. bark harvested when  
trees are 5-15 cm. thick, <sup>new</sup> cut 20 cm.  
from ground so as to sprout.



- L 27500 *Cinchona pubescens* var. *succinultra* 3700'  
cultivated near house,  
said to be from wild stock  
from this area.
- L 17 01 *Cinchona pubescens* var. *succinultra* 3300'  
cult. in coffee plantation
- L 7 02 *Cinchona pubescens* var. *succinultra* 3400'  
same
- L 2 03 *Cinchona pubescens* var. *succinultra* 3400'  
same
- L 04 *Cinchona pubescens* var. *succinultra* 3400'  
same
- L 05 *Bomarea laevis* 3400'  
weed in coffee plantation
- L 7 06 *Melastoma* 3400'  
weed in coffee plantation
- L 6 07 *Hamelia patens* 2500'  
river bottom land

clump of sterile sprouts  
4 m. tall, leaves scarcely  
showing red color till old!

small tree 5 m. tall, leaves  
sub-glossy above, veins  
scarcely reddish, leaves  
turning bright red when  
old, flowers with  
tube and throat bright  
pink, lobes pale, hairs  
white. (bark sample,  
but bark was cut around  
below where sample was  
taken)

same data but no flowers,  
fruiting branches completely  
without leafy side twigs.  
(no bark)

small tree 5 m. tall, 9 cm.  
thick, leaves green, dull  
above. (bark sample)

same (no bark)

fls. white

fls. pink

shrub 2 m. tall, fls. red-  
orange, fruit purple-black  
when ripe, 5-celled.



✓ Jan. 11 - Canyon of Rio Playas,  
10 km. s.w. of San Miguel,  
Prov. Bolivar  
along road on steep side  
of canyon.

L 22508 *Gonzalagunia*  
bush on edge of cliff below road

L 09 *Distigma*  
cliff above road

L 4 10 *Drymaria*  
road cut, wet forest

L 1 11 *Calceolaria dilatata* Benth.  
road cut, wet forest, only  
one seen.

L 1 12 *Galium hydnocarpium*  
road cut

L 5 13 *Cinchona pubescens*  
wet woods

✓ Jan. 12 - 6 km. s.w. of Guaranda  
Prov. Bolivar  
rocky roadside banks  
cleared land. 9600'

L 3 14 *Hedyotis*  
common

✓ Jan. 15 - Valley of Rio Saloya,  
s.w. of Guano, road to  
Santa Domingo -  
various altitudes from  
headwaters at 11,000 ft. to 5800'

5800' slender shrub 1 m. tall,  
fls. white, fruit white,  
tinged with purple, fleshy,  
pendent, vine-like.  
fruit cylindrical, deep  
lavender, calyx lobes dark.  
leaves fleshy.

8000' vine-like, up to 2 m. long,  
lvs. gray-green, fls. white.  
pendent, fls. bright  
sulfur-yellow.

Dr. Molan

fruits orange, fleshy.

7600' clump of sterile stump,  
sprouts 3 m. tall.

*Cinchona pubescens*  
(bofedal) common from  
8400' down to 5500' in  
places coming up like  
a weed in road cuts,  
clearings, etc.



— headwaters of river, 15 km.  
s.w. of Quito

road cut in brushy  
vegetation

11011'

L 22515 *Hypochaeris?*

L 16 *Oryzaria*  
partly shaded banks

L 17 *Lambusca*  
cultivated at entrance  
to farm.

same

10600'

L 18 *Nertera*

— canyon of river, above  
Chiriboga, 70-75 km.  
w. of Quito.

L 19 *Galium hypocarpium*  
talus slope

L 20 *Nertera tetragyna*  
road cut, rocky

L 21 *Cinchona pubescens*  
steep brushy canyon  
wall

2 types of heads, one  
with ligules blue,  
other with a tubular  
organ, whitish, long  
exserted.  
fls. white.

brush 2-5 m. tall,  
leaves mostly yellow,  
fls. white, fruit apparently  
by abortion.

prostrate, apparently  
sterile, leaves ~~thin~~.

9000' prostrate, fruits fleshy,  
orange.

prostrate, leaves  
stiff, fls. greenish,  
fruit translucent  
red.

9400' small tree 6 m. tall,  
10 cm. thick, sterile,  
leaves dull, veins red.  
(bark sample)



L25 22 *Cinchona pubescens* Vahl  
steep ravine side below  
cultivated plot, in thicket

L5 23 *Hoffmannia*  
roadside thicket, canyon wall

L3 24 *Lycopersidium*  
road cut, abundant

L9 25 *Cinchona pubescens* Vahl  
~~dense~~ forest with  
dense Chusquea and other  
undergrowth on steep slope

L2 26 *Persea granadensis*  
road cut

L1 27 *Galium hypocassium*  
road cut

✓ Valley below Chimiboga,  
near Baloya Experimental Station  
river benches

L5 28 *Drymaria ovata*  
roadside bank

L7 29 *Cinchona pubescens* Vahl  
open roadside, rare

L2 30 *Cinchona pubescens* Vahl  
open roadside, common

L5 31 *Cinchona pubescens* Vahl  
open cultivated clearing,  
common

7850' small tree 7 m. tall,  
12 cm. diam. leaves  
dull, "cascarilla" bark  
sold to drug stores

7600' shrub 1.5 m. tall,  
fls. red, fruits dark  
red, cylindrical, andocarp  
very thin & soft, seeds many

7200' ~~shrub~~

7200' Tree 15 m. tall with  
several trunks, the  
largest 60 cm. thick,  
leaves dull, bark  
tightly adherent to  
wood. (bark sample)

7100' prostrate, fruit translucent  
red  
fruit fleshy, orange,  
plant prostrate

prostrate, trailing,  
fls. white.  
sterile sprout 1 m. tall  
(cf. #72530 as *C. pubescens*)  
sterile sprout 1 m. tall  
(cf. #72529 as *C. pubescens*)  
sterile tree 5 m. tall  
leaves dull, veins becoming  
reddish.



- L<sub>1</sub> 22 *Borreria laevis*  
weed in cultivated ground
- L<sub>2</sub> 23 *Juncus*  
weed in cultivated ground
- L<sub>1</sub> 24 *Drymaria*  
weed in cultivated ground  
rare
- L<sub>2</sub> 25 *Astrophia strobilophyllodes* (J.E. Smith)  
BC. det. S. Smith  
weed in cultivated ground
- L<sub>4</sub> 36 *Drymaria cordata* L.  
common weed in cultivated ground

Jan. 17 - Monument to La  
Condamping on the Equator  
5 km. n. of Pomasqui, 25 km  
n.e. of Quito, Pichincha  
open sand flat, with 2000'  
scattered *Croton*, ~~tree~~ and  
herbs

- L<sub>2</sub> 37 *Verbena*
- L<sub>2</sub> 38 *Euphorbia*
- L<sub>2</sub> 39 *Amaranthus*?
- L<sub>2</sub> 40 *Cardionema ramosissima*
- L<sub>2</sub> 41 *Croton*  
common

Jan. 24 - Quito, Pichincha  
crevices in mud wall 9300'

- L<sub>2</sub> 42 *Calceolaria*
- L<sub>2</sub> 43 *Verbena*

spreading, fls. white  
tufts  
fls. white

reclining, fls. white.

prostrate to ascending  
fls. white, pedicels  
sticky.

fls. white, plant  
prostrate in large  
clumps

- prostrate, purplish.
- prostrate, not enlarged.
- flowers white.
- prostrate
- gray, flowers whitish.

pendent, much branched herb, fls. <sup>greenish</sup> cream col.  
much branched, many stems from  
thick root, fls. purple.



Jan. 26, 1945 - bet. Tambillo  
+ Alaoq, 25 km. s. of Quito,  
Prov. Pichincha  
brush in fence - rows along  
roadside. 9300'

L 22544 Datura  
rare

L 45 Franseria  
very common

L 46 Datura  
common

L 47 Monnina  
common

L 48 *Asclepias tuberosa*

L 49 Fuchsia  
occasional

with  
m.a. giles Jan. 26 - 1945 - hill above Laguna  
de Yumbo, 9 km. n. of Ambato,  
Prov. Tungurahua 9300'  
In Opuntia and Agave rows separate  
cultivated patches, volcanic ash soil.

L 50 Erigeron

"barachero"

shrub 2 m. tall, fls.  
pendent, throat deep  
chrome yellow, tube  
greenish. used as a barachero.

shrub 2 m. tall.

"artemisa" used as a barachero

shrub 2.5 m. tall, fls.  
pendent, distal part  
of throat scarlet with  
green veins without,  
proximal part yellow  
with green veins, tube  
green. Used as a barachero.

"guandiro"  
shrub 2 m. tall, fls.  
indigo-purple, with  
yellow apex, fruit black  
when ripe. "iguilan"

vine climbing over bushes,  
fls. deep purple.

shrub 1-1.5 m. tall,  
fls. ~~purple~~, vermillion.

fls. white, tips of involucres  
bracts purple.



L 22551 Verbenia  
L 52 Erigeron

L 53 Malva

L 54 Campanula

L 55 Artemisia  
common

L 56 Solanum  
roots deep in cacti

Jan. 26, + Pampa de Luisa,  
near Estacion Luisa (Machra),  
Prov. Tungurahua 11600'

bunch grass land, with Agave turfy

L 57 Vaccinium  
abundant along top edge of  
road-cut.

L 58 Gentiana  
common on open slope

Jan. 27 - Rio Chuburga (Chubún),  
3 km. below Cajabamba, Prov.  
Chimborazo 10000'

with  
m.d. gill  
L 59 Chrysanthemum  
railroad cut in dry volcanic ash

L 60 Hedysotis

L 61 Senecio

L 62 Salvia

fls. whitish  
fls. white, turning  
brick red.  
climbing, tangled over  
other plants, fls. <sup>greenish</sup> cream  
white.

fls. lavender.  
strong sage odor

spreading herb. fls.  
purple, fruit mottled green.

prostrate, fl. rose pink

small bunches, fl. lavender

rays white, disk yellow.

"Santa Maria".

flowers white, buds purplish  
without. "Chisa".

plant depressed, leaves  
thick, fleshy, heads yellow.  
fls. orange red, leaves with  
a strong liniment odor when  
broken



Jan. 27 - RioBamba, Chimboazo  
Cultivated in park 2500'

L 22563

L 64

Jan. 27 - Pampa de Colta,  
bed of Laguna de Colta, 3 km.  
s. of Cajabamba, Chimboazo  
lake mostly drained,  
bed covered with a very  
short, dense turf of Alchemilla  
and a sterile grass.

L 65

Alchemilla

Libambe,

offl. of Rio

with m. &amp; giles

Jan. 28 - Canyon of Rio Libambe,  
Chanchán, Chimboazo  
8000 - 9300'

brushy over-grazed slopes

L 66

Acalypha

L 67

Cassia

very common

L 68

Cuphea

L 69

Bonania

L 70

Alternanthera repens

in grazed and trampled places.

L 71

Polygonum

L 72

Alternanthera

L 73

Chenopodium

L 74

Chenopodium

L 75

Chenopodium ambrosioides var.

spreading tree 5 m. tall,  
dense crown.

small tree, fls. magenta  
purple, fruit green.

prostrate, fls. yellow within.

small bush, style branches  
red, "cola de gallo".

bush 1.5 - 2 m. tall, flowers  
bright chrome yellow.

calyx reddish, petals lavender  
fls. white

prostrate

fls. white, pinnatifid without  
prostrate, "compedratillo"

spreading bushy herb?  
"palitara"

spreading bushy herb.

spreading, prostrate, bushy  
strongly aromatic herb. "baico".



- 22976 *Chenopodium*  
 77 *Anagallis arvensis* blue form  
 78 *Croton*  
 common  
 same <sup>dry</sup> cliffs and talus at  
 their base - cliffs covered  
 in many places with *Aechmea*!  
 79 *Notholaena*  
 crevices and ledges  
 80 *Polypodium*  
 Talus  
 81  
 foot of talus among boulders  
 near stream  
 82 *Adiantum*  
 talus, uncommon here but  
 very abundant along railroad  
 cuts at somewhat higher altitude  
 83 *Pellaea*  
 Talus, rare  
 84 *Oxalis*  
 talus, very common  
 85 *Aechmea* ~~sp.~~ *sp.*  
 abundant on cliffs  
 86 *Lycopodium*  
 87 *Tillandsia usneoides*  
 hanging on cliff  
 88  *Gnaphalium*  
 Talus  
 89 *Falvoa*  
 90 *Lupinus* ~~sp.~~ *sp.*  
 Talus

- low bush, leaves <sup>glaucous</sup> ~~grayish~~  
 fls. deep blue with purple  
 center.  
 bush 1 m. tall, fls. whitish  
 fronds erect, light green  
 herb up to 1 m. tall, young  
 infl. blackish-purple.  
 young fronds reddish.  
 fls. white, leaves  
 slightly grayish green.  
 stems branching, pendent,  
 bracts reddish.  
 shrub 1 m. tall, fls. blue-  
 purple  
 used in some parts of  
 Ecuador to stuff mattresses.  
 prostrate, densely branched  
 aromatic herb fls. purplish  
 fls. violet with whitish  
 triangle in banner.



- LL 22591 *Guaranina*  
 common on talus  
 LL 92 *Helaginella*  
 shaded place on cliff  
 L 93 *Asplenium*  
 crevices on cliff  
 LL 94 *Cheilanthes*  
 crevices in cliff  
 LL 95 *Plantago*  
 talus  
 LL 96 *Melilotus*  
 talus  
 LL 97 *Polypodium*  
 rock crevices  
 L 98  
 talus, on earth  
 L 99 *Pilea*  
 talus  
 LL 22600 *Hedyotis*  
 talus, common  
 L 01  
 talus, rare  
 L 02  
 talus, on earth  
 L 03  
 talus  
 L 04 *Hedyotis*  
 talus, common  
 L 05 *Argemone*  
 foot of talus, common  
 L 06  
 talus

- vine several m. long,  
 fls. orange, fruit immature  
 (monoecious)  
 adhering flat to rock.  
  
 fls. yellow  
  
 fl. bright purple  
 fl. white, longistylous  
 small clumps, fls. scarlet.  
  
 mat forming  
 fls. white, brevistylous  
 glaucous herb, fls.  
 straw-yellow, sap orange.  
 "amapola"  
 prostrate, fls. brick red



- L 22607 *Salvia*  
 L 22608 common on talus  
 L 22609 common on talus  
 L 22610 *Schinus molle*  
 common on talus  
 L 22611 *Hedyotis*  
 common on talus  
 L 22612 *Lantana*  
 common on talus  
 L 22613 *Hedyotis*  
 common on talus  
 L 22614 *Mirabilis*  
 common on talus  
 L 22615  
 occasional on talus  
 L 22616 *Mirabilis*  
 common locally on talus  
 L 22617 *Begonia*  
 occasional on talus and ledges

- fls. blue  
 - fls. violet to blue, anthers orange, all on one side.  
 - bush 1.5 m. tall.  
 - heads bright purple.  
 - small tree 3 m. tall, with scaly bark, fls. whitish, fruits turning pink.  
 - fls. white, brevistylous  
 - prostrate, fls. deep chrome yellow.  
 - fls. white longistylous  
 - spreading ascending branched herb, a number of stems from one root. fls. deep rose purple, filaments and style curved upward.  
 - shrub 1.5 m. tall, flowers deep purple. "pepino" fruit eaten.  
 - spreading ascending herb, several stems from one root, flowers brilliant deep rose purple, filaments and style curving upward.  
 - tuber range within, ~~fls.~~ leaves viscid, white beneath, fls. scarlet.



- 22618  
 very common on talus  
 19  
 common on talus  
 20  
 common at foot of talus  
 21 *Phenax*  
 occasional on talus  
 22  
 very common on talus  
 23 *Monsina*  
 occasional on talus  
 24  
 occasional on talus  
 25 *Solanum (hyoscyamum)*  
 common at foot of talus  
 26 *Baccharis*  
 common on talus  
 27  
 rare on talus

Jan. 29 - Cerro Buerán  
 (Páramo de Curiquinga), 5 km.  
 S. of Cañar, Prov. Cañar  
 open turfey grassland 11600-11900  
 with <sup>low</sup> brush in sheltered  
 or steep places.

28 *Azorella*

29 *Senecio*

30

31 *Calandrinia*  
 common

- shrub 1 m. tall, inflorescence  
 mostly diseased and dead.  
 prostrate, fls. scarlet  
 from central root  
 bushy herb 1 m. tall, fls.  
 yellow.  
 depressed shrub.  
 large clumps.  
 fls. deep indigo  
 prostrate, fls. orange  
 sprawling aromatic.  
 viscid herb, fls. bright  
 yellow, fruits green.  
 shrub 1.5 m. tall,  
 heads whitish.  
 without stinging hairs.

small round hummock  
 fl. white, bracts with  
 purple tips  
 spike purple.  
 fls. white



- 22632 *Senecio*  
abundant in patches
- 33 *Poa*
- 34 ~~Carex~~  
mixed in turf
- 35 *Panicum*  
rare, mixed in turf
- 36  
in wet turf
- 37 *Plantago*
- 38 *Ranunculus*  
wet place
- 39 *Epilobium*
- 40 *Castilleja*  
in bushy places
- 41 *Eleocharis*  
wet turf
- 42 *Castilleja*  
in wet turf
- 43 *Lisyranchium*
- 44 *Gentiana*  
steep slopes
- 45 *Mimulus*  
wet places
- 46 *Veronica*
- 47 *Carex*  
bare spot in turf
- 48  
steep bushy slope
- 49 *Lupinus*  
along small streamlet

- leaves distichous, glaucous,  
ray purple without, white  
within.  
mixed in turf  
flowers white.
- flowers white, anthers  
purple (petals broader  
than in #22634)
- fls. yellow, petals small.
- plant reddish, fls. pink.  
bracts tipped with  
scarlet, corolla green  
with orange line beneath.
- bracts and calyx dull  
purplish distally  
flower yellow.  
flower purple
- flower yellow with  
red dots on palate.  
fl. blue-violet.  
dense tuft
- bush 1 m. tall, calyx red,  
corolla deep purple.  
bush up to 1 m. tall,  
fls. bright purple with whitish  
wedge to banner.



- 22650 *Senecio* (gynoxys)  
crest of steep, brushy slope
- 51 *Miconia*  
steep, brushy slope
- 52  
very abundant in open  
grassy places
- 53 *Acacia*  
common on slopes
- 54 *Calceolaria* *micridos* Vahl det. W. Woodhouse  
common on steep, brushy slope
- 55 *Valeriana*  
steep, brushy slope
- 56 *Ranunculus*  
very common in wet turf
- 57  
common locally

Jan. 29, 1945 - Along Rio Azogues P. Cañar  
bet. Azogues and Chuguijata.  
flats along river and low  
bluffs nearby 8000'

- 58  
flats
- 59  
bluffs
- 60 *Cheilanthes*  
crevices in masonry wall
- 61 *Dodonaea viscosa*  
common on dry bluffs
- 62  
dry flats

- bush, 1 m. tall, fls. yellow
- shrub  
~~plant~~ strictly erect, 1 m. tall  
fruits, <sup>dull</sup> purple  
small tufts
- low, suffrutescent herb.
- flowers sulfur-yellow,  
plant caespitose, strictly  
erect.
- pendent shrub,  
fls. white, odor unpleasant  
flower bright yellow,  
petals appearing varnished  
within.  
flowers white

ovary green, perianth  
coral red with green tips  
bush 1.5 m. tall, fls. coral  
red, fruits green.  
tufts

bush 1 m. tall.

bush 1 m. tall, fls. white,  
fragrant, (fruit said to be  
black, but not seen).



22663

Vicia

flats near river

64

flats near river

Jan. 29 - Rio Azogues just  
below Chugquipata, Cañar  
bluffs and roadside 8000'

65

Hedyotis

bluff above road

66

Galium

bluff above road, rare

67

Hedyotis

bluff above road

68

Lunaria

roadside

69

Oenothera

roadside

Jan. 29 - Rio Matadero below  
confluence of Rio Machingara,  
7-8 km. below Cuenca,  
R. Azuay 8000'

70

Zinnia

roadside in river flat

w. side of Cerro Yanguang,  
Feb. 7 - Ridge east of Rio Duda,  
across from Pindilic

10000-10500'

rather low wet forest with much  
Chusquea and, about much "servitani"

with  
F. Pringle

fls. violet. said to be  
recently introduced  
and becoming a bad weed.  
prostrate, fls. brick  
red.

pendent shrub up to  
1 m. long, flowers white  
bristly long.  
prostrate

pendent shrub, flowers  
white, longistylous  
flowers ~~orange~~ rose  
~~purple~~  
withered flowers  
purplish.

erect suffrutescent  
herb, 1.5 m. tall, flowers  
scarlet (note variation  
in length of style of fruit)

Cinchona microphylla fairly  
common in this woods, has  
on different ~~fruit~~ trees, different  
shaped fruits, also varying amounts  
of pubescence, suggesting crossing with C. pit



- 22671 *Cinchona microphylla*  
wooded slope

"fls. of this said to be pink +  
fragrant, similar to those of rosado"

- 72 *Hedyosmum*  
wooded slope
- 73 *Cinchona microphylla*  
wooded slope

5 *Merthera granadensis*  
cut banks of trail

4 *Cinchona microphylla*?  
wooded slope

76 *Vaccinium*  
bush along trail

77 *Cinchona microphylla*  
wooded slope

78 *Vaccinium*  
no plant seen

- 10000' shrub 3 m. tall fruits  
dull red, hair somewhat  
tawny, leaves with veins  
impressed above, very  
prominent beneath, upper  
surface shiny. "crespilla", "crespo", "negra"
- 10111' shrub 2 m. tall
- 10111' small tree 6 cm. diam.  
6 m. tall, with sudden  
shoots, fruits green to  
purple. leaves glossy above,  
with veins impressed  
above, prominent beneath  
(bark sample). same name as 27129,  
prostrate, sterile
- 10500' small tree 4 m. tall,  
leaves glossy, veins impressed  
above, prominent below, with  
much less hair than usual.  
fruit reddish green. same name
- 10500' bush 8-10 dm. tall,  
leaves stiff, dark green  
above, pale below, corollas  
white, waxy, lobes revolute.  
(not all from same plant)
- 10500' shrub 3 m. tall, leaves  
glossy above, veins impressed  
above, prominent beneath,  
hair tawny; fruits <sup>dull</sup> red-purple  
"crespilla", "crespo", "negra"  
semi-prostrate, fruit  
half grown, leaves green above,  
pale beneath.



22679 *Chusquea*  
beside trail, grazed

80 *Cinchona microphylla*  
wooded slope

31 ~~81~~ *Gaultheria*  
brushy slope

82 *Gaultheria*  
brushy slope

Feb. 2 - East side of <sup>Cerro Yanguang,</sup> ridge east  
of Rio Dudas, slopes of valley  
called Ventanillas, above Shoray.  
steep, wooded slope

93 *Partria*  
brush along trail

94 *Pinguicula*  
masses on vertical banks at  
sides of trail

95 *Manettia*  
brush beside trail

96 *Drymaria cordata*  
vertical banks along trail

97 *Neitera granadenensis*  
vertical banks along trail

10500' a single tuft, the only plant  
in fruit. Other large  
thickets, perhaps the  
same species, sterile.

10500' shrub 2 m. tall, leaves  
shiny above, veins prominent  
beneath, hair  
tawny, fruits greenish red  
"crespillo" "crespa" "negra".

10500' bush 6 dm. tall, fruit  
red, greenish on one side. <sup>conspicuously</sup>

10500' bush 6 dm. tall, fruit  
green, bright reddish on  
one side. leaves conspicuously  
reticulate, veined beneath.

10600' weak erect herb in brush.  
fls. purplish above, white  
beneath.

10400'-300' leaves <sup>with</sup> involute margins,  
pale green, thin, fls. with  
pale lavender limb, purple  
throat, greenish spur.

10300' vine, fls. white.

9900' prostrate, ~~corolla~~ <sup>petals</sup> white,  
bifid, twice as long as calyx.

9800' prostrate, ~~fls.~~ fruit  
scarlet, translucent, juicy.



with  
fruits

Feb. 2 - Valley of ~~Vasquez~~ Rio  
~~Monas~~ near Shoray,  
7500'  
cleared rocky slopes above  
river.

22688 *Vaccinium*  
common

89 *Dracopis*  
common in cultivated land  
90 *Vaccinium*  
common

with  
fruits

Feb. 3 - Valley of Rio Monay,  
e. slope.

Cañon, 7700-8600'

Thick wet forest on steep slope

91 *Cinchona pubescens* var.  
common

92 *Podocarpus*  
rare

93 *Vaccinium*  
epiphytic

94 *Cinchona officinalis*  
common

bush ~~to 1 m.~~ 1 m. tall  
fls. deep coral red with  
yellow-green tips. fruits  
immature.  
flowers white.

shrub 5 m. tall, flowers  
deep coral red with  
yellow-green tips

*Cinchona pubescens* + *C. officinalis*  
growing together bet 8200 + 8600';  
possibly hybridizing, almost  
all here has been cut.

small tree 7 cm. thick, 6 m.  
tall, sterile, leaves  
green, when old turning  
dull reddish, dull above.  
(bark sample) "rosado amarillo"  
tree 50 cm. diam., 35 m. tall  
part within reach sterile.  
wood used for construction.

flowers and pedicels  
vermillion, corolla  
tipped with white. <sup>very distinct</sup>  
small bent over tree <sup>or climbing</sup>  
with erect sprouts  
along stem, 7 cm. thick  
near base, 6 m. long, <sup>almost</sup> sterile  
bark very tightly adhering (bark sample)

*Cinchona*  
fine



22695 *Melast*  
rare

96 *Cinchona pubescens*  
common

97 *Vaccinium*

98 *Pilea*

99 *Cinchona pubescens* var.  
common

22700 *Orel*  
epiphytic

01 *Orel*  
terrestrial

02 *Cinchona*  
A-R scattered in woods  
where bark gatherers have  
cut down almost all *Cinchona* trees

03 *Orel*  
rare

04 *Orel*  
terrestrial

05 *Orel*  
terrestrial

shrub, peduncle erect,  
corolla coral red, stamens  
all on one side; leaves  
leathery, shiny, rugose  
above.

sapling 4 m. tall, leaves  
dull above, turning red  
when old. "rosada"

epiphytic, flowers <sup>dull</sup> rose pink,  
pale toward tip, dull without.  
fleshy, purplish green

sterile sapling  
4 m. tall, leaves green,  
dull above. "rosada"

sepals bronze-green, petals  
pinkish white, lip with  
purple spots in center.  
spike erect, waxy green,  
fl. bronze.

mass collection of sprouts  
only the tips and large  
leaves of each, to demonstrate  
"hybridization" between  
the two species.

erect shrub with long bare  
branches, leaves and  
flowers only at tips.  
flowers red (mature  
flower picked up on ground).  
fls. purplish bronze

tip of limb of perianth  
parts dark purple, rest  
of flower greenish white.



on fallen log.

- 07 *epiphytic*
- 08 *Cinchona officinalis*
- 09 on fallen log & earth
- 10 *Lanicula*  
wet shaded slope
- 11 *Hoffmannia*  
occasional in undergrowth
- 12 *Psychotria*  
rare
- 13 *Hoffmannia*  
common in undergrowth
- 14 *Psychotria*  
common in undergrowth
- 15 *Cephaelis*  
common in undergrowth
- 16 *Palicourea*  
plant seen
- 17 *Palicourea*  
occasional on ground

perianth dull orange,  
spike nodding.

perianth bronzed-white.  
lip deep purple.  
tree 6 cm. diam., 6 m. tall.  
leaves glossy above, fls.  
deep purple, with white  
hairs. fruit immature.  
(bark sample)

shrubby, up to 1 m. tall,  
fls. yellow.  
somewhat caespitose

weak shrub 1 m. long,  
fls. red, fruit immature.  
erect, suffrutescent, up to 1 m.  
tall; stem brittle, fls. scarlet  
leaves deep purple beneath.  
fls. white, stem rather  
fleshy, stipules fleshy,  
projecting.

shrub up to 1.5 m., fls.  
yellowish, fruit red  
and fleshy when ripe,  
mostly immature  
herb, up to 1.5 m. tall, fls.  
yellow.

weak herb, fls. blue.

fls. bright purple, shrub  
fruit immature  
flowers bronz-green, fleshy.



- 22719 *Pilea*  
rare, terrestrial
- 20 *Pilea*  
rare in undergrowth
- 21 *Pilea*  
epiphytic
- same - west side of valley.  
cleared slope
- 22
- 23 *Drymaria*  
in cultivated ground, weedy
- 24 *Cephaelis*  
probably left from under-  
growth of forest.
- 25 *Drymaria*  
cult. ground
- 26 *Vaccinium*  
path of woods
- 27 *Cinchona officinalis*
- 28 *Blechnum*
- 29 *Cinchona pitayensis*

- fls. whitish
- stem fleshy, white  
stipules.
- fls. pale bronze green, lip  
reddish-bronze
- small shrub, leaves  
glossy, ~~fruit~~ fruit immature  
fls. white.
- small subshrub, yellow-  
green, fls. blue
- 8500' fl. white
- 8000' low shrub, fl. pinkish,  
leaves fleshy, fruit immature
- 9200' sapling 2.9 m. tall, "costus fin"  
rhizome climbing, fertile  
fronds ascending, sterile  
horizontal.
- small tree 6 cm. thick, 7  
m. tall, sterile, leaves  
leathery, glossy above,  
veins somewhat prominent,  
sucker shoots with  
thinner much more  
lairy leaves. bark  
adhering to trunk (bark sample).



22730 *Ladenbergia*

31 *Cinchona officinalis*  
on ridge

Hacienda Funtillas, quebrada Funtillas  
Feb. 4 - n. w. side of canyon of  
Rio Pante just west of confluence  
with Rio Jubal, 40 km. e. n. e.  
of Ayogues, Prov. Cañar 1900-3200'  
wet disturbed forest on  
steep slope, openings  
filled with a giant *Chusquea*

32 *Cinchona pubescens*

33 *Liczyos*  
in opening

34 *Cinchona pubescens*  
edge of opening

35 *Uncaria*  
opening

36 *Cinchona pubescens*

37 *Palmetto*  
openings

(remarkable resemblance to *Sten...*)

9200' tree 17 m. tall, 8 cm. thick,  
fls. white, fleshy, very  
fragrant. (bark sample)  
clump of sprouts  
"artona fin"

12 cm thick near base,  
small tree, damaged above, sterile,  
leaves dull above, turning  
red when old. (bark sample).

herbaceous vine climbing  
over brush, flowers green  
leaves venose beneath  
sprout 3 m. tall,  
leaves unusually large,  
dull above

large tangled herb  
with a bitter oily odor like  
*Conium maculatum*,  
flowers green, fruits  
immature.

sapling 5 m. tall, 5 cm.  
thick, leaves dull  
above.

tangled recumbent herb,  
flowers magenta, nutlets not  
quite mature red-marcescent. <sup>sterile</sup> aromatic.



22738 *Cinchona pubescens*  
edge of opening

L 39 *Label*

in thicket overhanging trail  
40 *Saurauia leptotheca* Shumacher var. *poliginatha*  
~~Saurauia~~ *Saurauia* Soejarto Paratypus  
along trail, only one seen.

41 *Begonia*  
common in shade

L 42 *Burmeistera*  
rare in thickets overhanging trail, rare

L 43 *Label*  
rare in undergrowth

44 *Label*  
rare in undergrowth

tree partly dead, 15 cm.  
thick, top damaged, sprout  
5 cm. thick, 6 m. tall from  
near base. (specimen and  
bark from sprout) Leaves  
dull above, turning  
red when old. Plant  
sterile. (bark sample)

elongate shrub,  
flowers orange-vermillion,  
small shrub, 1 m. tall,  
fls. white.

fleshy stems, leaves  
green above, red-purple-  
bronze beneath, peduncles  
& pedicels red, flowers  
vermillion, fruit  
green with edgings  
of red.

elongate purplish,  
green shrub, flowers  
orange green, lower  
lip lighter, muscat odor.  
fruit inflated (fruiting  
and flowering ~~specimens~~  
from different plants)

elongate shrub,  
fls. scarlet-vermillion.  
~~Label~~ shrub, single  
stem 8 dm. tall, leaves  
velvety dark green  
above, maroon beneath,  
venose beneath, calyx  
yellow, corolla pale yellow  
red tipped.



22745

Lili.

in shade, occasional

46 Chusquea

abundant over most of area, especially in openings

47 Chusquea

Feb. 4 Rio Dandayacu, bet.  
Rio Moray and Rio Jubal,  
north side of Rio Pante, 37 km.  
e. n.e. of Azogues, Prov. Cañar  
deep wet wooded ravine 2000'

48

thicket above trail

49 Cinchona

Feb. 5 - Huertasparmbas, n.  
slope of canyon of Rio Pante  
bet. Rio Moray and Rio Moray, 35 km.  
e. n.e. of Azogues, Prov. Cañar

Vaccinium

250

erect, usually single  
stemmed suffrutescent  
herbs, leaves sometimes  
purplish beneath,  
flowers scarlet.

Forming tangled brakes  
up to 6 m. or more deep,  
high arching canes as  
much as 5 cm. thick, solid.  
Only one plant seen fertile.  
#22747 represents a nearly  
sterile one.

sterile plant corresponding  
to #22746, same data.

elongate shrub, flowers  
vermillion.

sapling, sterile. ~~Coffea~~  
leaf texture of *C. pubescens*  
of region, but shape and ~~texture~~  
of pubescence wrong. *C.*  
*officinalis* "Costona fina"  
growing on slope above.

leaves stiff,  
shrub 1.5 m. tall, ~~small~~ flowers  
in cluster of three, corolla ~~red~~  
not darker at tip, dull without.



22751

Vaccinium

Terrestrial, steep open slope

with  
F. Prule

Feb. 5 - Santo Tomas, steep  
wall of valley of Rio Macas  
opposite library, 3 to 4 km. n.e.  
of Azogues, Prov. Cañar 7500-8000  
cleared land with brushy  
patches, fence-rows and trail  
sides

L

52 Hedysotis

one plant seen, rocky cat above  
trail

L

53 Acalypha

occasional in brush

L

54 Tournefortia

very common in brush

L

55 Vaccinium

rocky steep slope, terrestrial

L

56 Lantana

common in brush

L

57 Tournefortia

common in brush

L

58 Tournefortia

common in brush

L

59 Rubus

common in brush

L

60 Leguminosae

occasional in brush

shrub 1.5 m. tall, leaves  
leathery, flowers deep  
coral red turning distally  
to deep dull purple.  
lustrous without, less so  
toward tips.

(collected from horse while  
riding along trail so <sup>collections</sup> not  
always from same plant)

9100'

buds with pink tints,  
fls. white.

weak shrub up to 1 m.  
tall.

shrub up to 2 m. tall,  
flowers opening deep  
yellow, turning deep orange.

7500'

shrub about 1 m. tall,  
fls. deep coral, lustrous  
without, less so toward tips.

shrub up to 1.5 m. tall,  
flowers magenta-purple.

shrub up to 2 m. tall,  
fls. deep purple.

shrub up to 2 m. tall,  
fls. whitish.

arching and scrambling  
canes, fls. pink, fruit  
turning black.

7500'

shrub, fls. bluish.



22761 *Tibouchina*  
common in brush

Feb 5 - Valley of Ventanillas,  
small affluent of Rio Masar  
southwest of Shray, 33 km.  
n.e. of Azogues. Prov. Cañar  
wet wooded slopes, somewhat  
disturbed 9500-9600'

62 *Galium*  
in brush along trail

63 *Solanum*  
thicket along trail

64 *Stellaria*  
tangled in thicket along trail

65 *Viola*  
thicket along trail

66 *Palicourea*  
undergrowth

67 *Galium hypocarpium*  
thicket along trail

68 *Galium*  
thicket along trail

69 *Solanum*  
very opening, rare

70 *Viola*  
common throughout region  
from 8000' - 10400'

7500' shrub 1 m. tall, flowers  
deep royal purple.

herb, roots yellow, fruit  
green.

small shrub, tangled in  
brush, fls. yellowish, dark  
inside, fruit green.  
fls. white.

elongate, sparsely branched,  
stems glossy, deep purple-  
brown, flowers orange with  
yellow lobes.

shrub 1 m. tall, fls.  
greenish white, fruit  
black when ripe, mostly  
immature. Corolla tube  
not enlarged at base.

climbing in bushes,  
fruit orange, fleshy.  
tangled in bushes  
fruit not fleshy.  
weeds herb, fls. lavender.

vine-like, climbing in  
trees to 3 m. Plants observed  
flowering when 15 cm. tall,  
flowers scarlet.



22771 *Oenothera*

weed along trail in opening

✓ 72 *Rubus*

along trail on earth bank

✓ 73 *Manettia*

in thickets along trail

✓ 74 *Galium*

earth bank along trail

✓ 75 *Fuchsia*

thickets along trail, not common

✓ 76 *Valeriana*

thickets along trail

with  
F. Prieto  
Feb. 5 - Top of <sup>pass over Cane Gauguang</sup> ridge east of  
Rio Dudas, directly opposite  
Pindilic, 3.5 km. n.e. of Azogues,  
brushy, windswept crest,  
and slopes. 10600'

✓ 77 *Lycopodium clavatum* L.

vertical earth banks above trail

✓ 78

vertical earth banks

✓ 79 *Blechnum*

very common on vertical banks  
and trail sides

✓ 80 *Lycopodium*

vertical earth banks above trail

✓ 81 *Blechnum Eriodorum superlanceolatum* (L.)  
along trail det. Fagon 1970

✓ 82

vertical earth bank

flower red at base of

petals, tips yellow.

prostrate, fls. yellow like  
greenish.

wine, fruit immature,  
no veins visible on under side of  
leaves.

prostrate, fruits greenish

shrub up to 2 m. tall,

fls. pendent, bright red

weak shrub up to 2 m.

bracts white, fls. white.

Prov. Catar

extensively creeping,  
rooting, spikes erect.  
fronds erect

young leaves reddish.

extensively creeping,  
spikes erect.

trunk erect 3 dm. high

young fronds erect, others

ascending, stiff, dead fronds

lying on ground, detached.

flat against soil



- 22793 *Brunellia*  
occasional in scrub
- 84 *Vaccinium*  
occasional in scrub

Feb. 5 - across the valley of  
Rio Mangan from Taday,  
29 km. e. of Azogues, Pr. Cañar  
roadside in cleared cultiv-  
ated country 7900'

- 85 *Calceolaria obtusa* Molau det. Molau  
dry banks and wet muddy soil
- 86 *Hedyotis*  
dry bank
- 87 *Calceolaria*  
roadside
- 88 *Loasa*  
dry bank

- 89 *Drymaria*  
marshy place

- 90 *Carex*  
marshy place

- 91 *Carex*  
marshy place, in one  
spot excluding other  
plants

- 92  
common in brush patches  
and along trails

small tree 5 m. tall, dense.

flowers coral red, somewhat  
paler at tips, surface dull.

1982 fl. butter yellow.

fls. deep yellow.

diffuse scrambling  
plant with painfully  
stinging hairs, petals  
white, nectaries or stamens  
deep yellow with 2 transverse  
red bands.

diffuse, petals white,  
half again as long as calyx,  
deeply bifid.  
dense tufts

erect

shrub 1.5 - 2.5 m. tall,  
fls. bright rose, pendent.



Feb. 5 - Flats <sup>and slopes</sup> ~~along~~ <sup>headwaters of</sup>  
 Rio Mangan 20 km. n.e. of  
 Azogues, Prov. Cañar 10800'  
 semi-open brush and open slopes

22793 Valeriana

94 Viola  
 open ~~flat~~ flat ground

95 Hedyotis capitata

96 Barnarea

97 Hedyotis  
 rare, on tops of cut banks

98 Lobelia  
 openings and tops of cut banks

99 Blechnum  
 common on eroded banks

22900 Lycopodium  
 rare, vertical banks, eroded slopes

01 Eryngium humile  
 common on open slopes

02 Nertera granadensis  
 rare in open turf

03 Vicia sativifolia

04 Gleichenia  
 very common on banks

05 Valeriana  
 common on open slopes and banks

06 Hymenophyllum  
 common locally on vertical bank

bush 2 m. tall, fls. white.  
 prostrate, fls. purplish,  
 deepest near apex, with  
 dark lines on lower petal.  
 leaves thin, convex below,  
 concave above, fls. white,  
 purplish without.  
 flowers vermillion with  
 green tips.  
 small cushions, flowers  
 rare, white, purple without.  
 fls. purplish.

bronzegreen, quadrangular,  
 varying in stature, none  
 seen as ~~erect~~  
 short scaped as common in Colombia.  
 prostrate, fruits orange, red  
 very small (probably abortive).  
 stones 2, adherent.  
 fls. purple  
 fronds erect, stiff.

erect, fls. white.  
 rhizome glaucous.



- 22807 *Vicia*  
 108 *Pinguicula*  
 vertical banks of spring
- 09 *Polygonum*  
 common in open places
- 10 *Vaccinium*  
 common very locally on  
 vertical banks
- 11 *Gaultheria*  
 open places
- 12 *Blaspodium*  
 vertical eroded banks
- 13 *Azorella*  
 open places
- 14 *Vicia*  
 along stream
- 15 *Vicia*  
 along stream
- 16 *Thalictrum*  
 along stream
- 17 *Antennaria*  
 along stream
- 18 *Valeriana*  
 along stream

Feb. 5 - Headwaters of Rio  
 Shirincay, west slope  
 of Cerro Huairacaja, 10 km.  
 n.e. of Azogues, Prov. Cañar  
 Partially brushy, partially cleared

19 *Weinmannia*

- fls. violet  
 leaves thin, yellow-green,  
 involute, fls. purple  
 with margins fading  
 to white
- prostrate, fls. reddish  
 green.
- prostrate, corolla bright  
 rose, fruit translucent  
 white, soft, at first pleasantly  
 acid, then bitter to taste.
- prostrate, fls. pink,  
 fruit black.
- fronds erect.
- forming thick cushions  
 flowers violet.
- flowers violet

fls. blue-violet.  
 erect herb

10800'  
 slopes

tree 6 m. tall



- 22720 *Chusquea*  
abundant on open slopes and  
tangled in brush

~~Feb. 2 - 1945~~

- 4 21 *Valeriana*  
brushy roadside
- 4 22 *Mentha granadensis*  
steep bank of black soil
- 4 23 *Protea*  
brushy roadside

Feb. 5 - ridge bet. upper  
Rio Thirineay and upper  
Rio Larcay, n.e. of San Marcos,  
3 km. n.e. of Azogues,  
Prov. Catara

Cleared slopes, partly regrown  
to brush 1000'

- 24 *Cinchona pitagora*  
open slope

Plant 1.5 m. tall, canes  
arching, not all of  
population flowering.  
this plant the highest  
observed flowering, others  
sterile higher on slope,  
further down flowering  
more commonly.

fls. & bracts white.

1000' prostrate, trailing, fruits  
red, juicy, with 2 stones.  
10500' shrub 3 m. tall, leaves  
(photos) gray-glaucous beneath,  
flowers white, corolla  
turning pinkish, fruit  
clusters in lower portion  
of branches.

stump with dense  
clump of sprouts 2 m.  
tall, scarcely fruiting, leaves  
smaller than in #22725. (same  
tree as Camp #1815). fruits  
reddish-brown, leaves  
glossy. "leaves gallinazo blancos".



- 22325 *Cinchona*  
open slope

same but Feb. 2

- 26 *Cinchona*  
bushy slope

Feb. 2 - Headwaters of Rio  
Shirinay, west slope of  
Cerro Huainacaja, 10 km. n.e.  
of Azogues, Prov. Cañar

- 27 *Hedyotis capitata*  
rocky bank with small bushes

- 28 *Galium hypocarpium*  
rocky bank

Feb. 5 - Rio Shirinay 5 km.  
n.e. of Azogues, Prov. Cañar

- 29 *Hedyotis*

30

31

(photos)

stump with <sup>dense</sup> clump of  
sprouts, heavily fruiting,  
scarcely flowering. Leaves  
glossy, larger than in 22324.  
Fls. purple. Fruit bronze-  
red. Leaves turning bright  
crimson when old. "Pato de gallinas  
blanca" ~~same~~ same tree as  
Camp 21317.

small tree or developed  
sprout 4 m. tall, leaves  
deep green, glossy, above,  
pale and less glossy  
below, when old turning  
deep red. Corolla purple,  
hairs brownish-gray.  
"pato de gallinas blanco".

10 800'

erect shrub 3 dm. tall,  
leaves keeled, fls. in terminal  
clusters, buds pale lavender,  
corolla almost white

10 800'

creeping, fruits bright  
orange, fleshy

three different plants, one more  
or less erect but with main woody  
stem prostrate, others pendent from  
bank, fls. white



with  
M. A. Teller  
to make

Feb. 8 - Tablon de Oña, slope to south, 3 km.  
s. of Oña, Prov. Azuay 3500'

22833 *Euphrea*

Common on open slope

Feb. 8, Oña, <sup>Cayambe</sup> Rio Oña, Prov. Azuay 7600'

33 *Hedyotis*

crumbly ledges of earth and decomposing rocks.

Feb. 8, - Hacienda Zuzudel, 2 km.  
s. of Santa Rosa, s. end of Cordillera  
Alpachaca, Prov. Azuay 9700'  
slopes covered with low brush

34 *Befaria*

35 *Vaccinium*

36 *Linum*

37 *Vaccinium*

38 *Phlox*

39 *Befaria*

40 *Befaria*

41 *Vaccinium*

42 *Lycopodium*

43 *Hedyotis*

abundant

44 *Vaccinium*

Feb. 8 - Nudo (Paramo) de Tinajillas,  
32 km. s. of Cuenca, Prov. Azuay 10300'

Grassy slopes

45 *Galium hypocarpium*

46

47 *Gnaphalium*

48 *Hedyotis capitata*

49 *Gentiana*

50 *Luzula*

rocky roadcut

flowers magenta, calyx  
brick red.

dwarf shrub, fls. white  
leaves glossy, pale beneath.

"Pazama" dwarf shrub, fls. rose, somewhat viscos.  
low shrub, leaves stiff, fls. dull coral red.

flowers yellow.

low shrub, fls. dull coral, pale toward tip, stiff.

fls. dull, dirty pink, rather brown <sup>viscous</sup> <sup>stiff</sup>.

small shrub, fls. rose, buds viscos.

small shrub, fls. rose, buds viscos.

shrub 2-3 dm. tall, fls. pinkish, fruit globose.

branchlets much compressed.

(photo) prostrate to erect, young stems reddish  
purple, fls. white flushed with  
the palest lavender. longistylous, <sup>terminal</sup> <sup>glabrous</sup>.

low shrub, fls. dull coral. Note <sup>older</sup> <sup>leaves</sup> <sup>glabrous</sup>.

fruit reddish black.

prostrate, fruit fleshy, orange.

fls. lemon yellow, inv. blackish-green.

upright herb. <sup>anthers purple</sup> <sup>buds purple</sup>.

lvs. concave & channelled above, fls. white, longistylous.

erect, fls. bright yellow with part of bud outside.

erect, caespitose, branches

to incl. pendulous.



22851 *Nertera granadensis*52 *Geranium*53 *Hedyotis*54 *Stellaria*55 *Stellaria*Feb. 8 - Loja, Prov. Loja 7000'  
Along bank of river56 *Salix Humboldtii* (diffuse form)57 *Salix Humboldtii* (diffuse form)58 *Salix Humboldtii* (diffuse form)59 *Baccharis*60 *Antennaria ambrosia*61 *Alnus*Feb. 9 - Paso de Cajanuma, 9 km. S. of  
Loja, Prov. Loja 8000'  
brushy ridge62 *Feb.*63 *Weinmannia*64 *Weinmannia*65 *Cap...*66 *...*67 *Valeriana*68 *Vaccinium*69 *Weinmannia*70 *Viola*

abundant on cleared slopes.

71 *Befaria*72 *Monarda*73 *...*74 *...*

on rocks

Feb. 9 - Headwaters of Rio Yajuma, 8 km.  
S. of Loja, Prov. Loja

greenish, fr. orange-red, 2 stamens.

greenish, fls. white

white, slightly purplish with

etc, pale green, fls. white

etc, pale green

22785

Celastrus affinis Nees

m. tall, prostrate, catkins

m. tall, stamens catkins

m. tall, fruiting

2 m. tall, diffuse, fls. white

tangled aromatic herb

m. tall, leaves <sup>greenish</sup> glaucous

shrub, fls. pinkish, orange

m. tall, fls. reddish, stamens white

m. tall, fls. rose, stamens white

shrub 2 m. tall, fls. white

vine climbing in <sup>fruit</sup> fls. dull vermilion

fruit indurated when dry (lost)

vine, fls. minute, white, fruit green

shrub 1 m. tall, fls. lustrous, red with <sup>green</sup> yellow

shrub 3-4 m. tall, fls. greenish, stamens white

herb up to 1 m. tall, rooting at nodes

fls. scarlet

shrub 1.5 m. tall, leaves glaucous beneath

erect shrub 2 m. tall, fls.

indigo-purple, fruits maroon (young)

caespitose, flowers scarlet



22851 *Nertera gran*52 *Geranium*53 *Hedyotis*54 *Stellaria*55 *Stellaria*

Feb. 8 - Loja

Along bar

56 *Salix Humboldt*57 *Salix Humboldt*58 *Salix Humboldt*59 *Baccharis*60 *Antennaria*61 *Alnus*

Feb. 9 - Pasado

Loja, Prov. L.

bushy vis

62 *Salix*63 *Weinmannia*64 *Weinmannia*65 *Salix*66 *Salix*67 *Valeriana*68 *Vaccinium*69 *Weinmannia*70 *Viola*

abundant on cleared slopes.

71 *Begonia*72 *Monarda*73 *Salix*74 *Salix*

on rocks

Feb. 9 - Headwaters of Rio Zamora, 8 km.

S. of Loja, Prov. Loja

NOV-29 1-1945-1000-000

TIME DATE

WISHES AN APPOINTMENT ☐IS WAITING TO SEE YOU ☐

EXT. NO.

YOU WERE VISITED BY

7000'

200'

Prostrate, fls. greenish, (orange-red, 2 stamens).

leaves grayish green, fls. white

prostrate, fls. white, slightly purplish with

prostrate, pale green, fls. white

prostrate, pale green

tree 10 m. tall, verticillate catkins

tree 8 m. tall, staminate catkins

tree 8 m. tall, fruiting

shrub 2 m. tall, diffuse, fls. white

low, rather tangled aromatic herb.

tree 10 m. tall, leaves somewhat glaucous

erect aromatic shrub, fls. pinkish orange

shrub 1.5 m. tall, fls. reddish, stamens white

shrub 2 m. tall, fls. rose, stamens white

shrub 2 m. tall, fls. white

vine climbing in shrubs, fls. dull crimson

fruit induricent when dry (only one seen)

vine, fls. minute, white, fruit green

shrub 1 m. tall, fls. lustrous, red with yellow

shrub 3-4 m. tall, fls. greenish, stamens white

herb up to 1 m. tall, rooting at nodes

fls. scarlet

shrub 1.5 m. tall, leaves glaucous beneath

erect shrub 2 m. tall, fls.

indigo-purple, fruits maroon (young)

caespitose, flowers scarlet



22851 *Nertera granadensis*

52 *Geranium*

53 *Hedyotis*

54 *Stellaria*

55 *Stellaria*

Feb. 8 - Loja, Prov. Loja 7000'

Along bank of river

56 *Salix Humboldtii* (diffuse form)

57 *Salix Humboldtii* (diffuse form)

58 *Salix Humboldtii* (diffuse form)

59 *Baccharis*

60 *Antennaria ambrosia*

61 *Alnus*

Feb. 9 - Pasedo Cajanuma, 8 km. S. of

Loja, Prov. Loja 3000'

brushy ridge

62

63 *Weinmannia*

64 *Weinmannia*

65

66

67 *Valeriana*

68 *Vaccinium*

69 *Weinmannia*

70 *Viola*

abundant on cleared slopes.

71 *Begonia*

72 *Monarda*

73

74

Feb. 9 - Headwaters of Rio Yamora, 8 km.

S. of Loja, Prov. Loja

N. slope Pasedo de Cajanuma

Prostrate, fls. greenish, fr. orange-red, 2 stamens.

leaves grayish green, fls. white

prostrate, fls. white, slightly purplish <sup>longer</sup> withers

prostrate, pale green, fls. white

prostrate, pale green

tree 10 m. tall, pistillate catkins

tree 8 m. tall, staminate catkins

tree 8 m. tall, fruiting

shrub 2 m. tall, diffuse, fls. white

low, rather tangled aromatic herbs

tree 10 m. tall, leaves <sup>some</sup> ~~glauca~~ <sup>glauca</sup> ~~glauca~~

erect aromatic shrub, fls. pinkish orange

shrub 1.5 m. tall, fls. reddish, stamens white

shrub 2 m. tall, fls. rose, stamens white

shrub 2 m. tall, fls. white

vine climbing in <sup>fruit</sup> fls. dull vermillion, <sup>anthers white</sup>

fruit indehiscent when dry (only <sup>one</sup> can <sup>be</sup> <sup>seen</sup>)

vine, fls. minute, white, fruit green

shrub 1 m. tall, fls. lustrous, red with <sup>green</sup> <sup>white</sup> <sup>stamens</sup>

shrub 3-4 m. tall, fls. greenish, stamens white

herb up to 1 m. tall, rooting at nodes

fls. scarlet

shrub 1.5 m. tall, leaves glaucous beneath

erect shrub 2 m. tall, fls.

indigo-purple, fruits maroon (young)

caespitose, flowers scarlet



- rocky, bushy slopes 7600'
- 20374 *Claphoglossum*
- 75 *Galium hypocarpium*
- 76
- 77 *Hedyotis*
- 78 *Hedyotis*
- 79 *Stellaria*
- 80 *Cinchona officinalis* L.  
in brush.
- Feb. 9 - S. slopes of Nudo de Cajanuma,  
above Pueblo Nuevo, opposite Cerro Uritzinga,  
11 km. S. of Loja, Prov. Loja 7500-7600'  
Cleared slopes with bushy ravines
- 81 *Palicourea*
- 82 *Vallea stipularis*
- 83
- 84 *Galium*
- 85 *Galium*
- 86 *Stellaria*
- 87 *Cinchona officinalis*
- 88 *Drymaria*  
cultivated fields as weed common
- 89 *Hedyotis*  
fence rows and pastures, common.
- 90 *Cinchona officinalis* L.
- 91 *Oenothera*
- 92 *Cinchona officinalis*
- A-F open clearings
- 93
- 94 *Cinchona officinalis*
- 95 *Vallea stipularis*
- 96 *Cinchona officinalis* L.  
bushy ravine
- 97 *Xanthoxylum*  
edge of brush

- leaves stiff
- prostrate, roots yellow, fruits orange, fleshy.
- aromatic shrub, fls. pinkish orange.
- dwarf shrub, fl. white, (few several plants)
- fls. white.
- 7750' fls. white
- 7750' sprouts up to 1 m. tall,  
leaves thin, not flat, veins prominent
- clumps of sprouts and small trees 4-6 m. tall and no more than 3 cm. thick, <sup>of *Cinchona officinalis*</sup> common, but bark had been taken from all.
- shrub, lvs. venulose beneath, veins impressed above, fruit green.
- small tree, flowers pink.
- aromatic shrub 2 m. tall, flowers pinkish-orange
- tangled in bushes, fls. greenish-white.
- fls. and fruits greenish.
- fls. white.
- small tree 6 m. tall, partly peeled.
- prostrate, flowers white.
- petals bifid,  $\frac{1}{3}$  longer than sepals.
- fls. white.
- small tree 4 m. tall, leaves <sup>fls. deep crimson</sup> tending to be irregular rather than flat.
- fls. rose pink.
- leaves turning brown when old. sprouts, each from different leaves not flat.
- clump, to show variation.
- vine climbing in trees, flowers with pink purple.
- tree 5 m. tall, leaves thin
- small tree, fls. rose, fruit green, covered with fleshy tubercles.
- small tree 6 m. tall, 3 cm. thick,
- leaves thin, fls. crimson-pink, odorless.
- single prickly stem 1 1/2 m. tall, fruits green.



27898 *Cinchona officinalis* L.

open slope

299 *Hyssopus*

trampled pasture

22900 *Hypericum*

trampled pasture

01 *Bocconia frutescens*

Feb. 9 - Valley of Malacatos s. of Malacatos  
(Valladolid), 15 km. s. of Loja, Prov. Loja  
dry slopes covered with *Acacia*, *Annona*, etc.

02

03 *Solanum*

04

abundant

05 *Oxalis*

06 *Tribulus terrestris*

07 *Heliotropium*

08

09 *Annona cherimolia*

wild, abundant part of vegetation

10 *Annona cherimolia*

wild, abundant in vegetation

11 *Croton*

common

12 *Cuphea*

common

13 *Mirabilis*

Feb. 9 - Landaucan, 6 km. s. of  
Malacatos (Valladolid), 20 km. s. of Loja, Prov. Loja

14

15 *Nicotiana glauca*

16

small gnarled, partially  
pedicel tree, fls. deep crimson pink, odorless.  
fls. yellow

fls. range yellow plant  
not even eaten by goats.  
bush 2.5 m. tall, range latex not abundant, <sup>fruit</sup> juicy.  
inflorescence apparently terminal

5200'

bush 2 m. tall, fls. yellow, fruit red.

bush 1.5 m. tall, fls. white, anthers orange, <sup>all over</sup> side

shrub 1-2 m. tall, receptacle

~~short~~ - shaped, single petal white, <sup>stamens</sup> many.

bush up to 1 m. tall, fls. yellow

fls. yellow.

suffrutescent herb, fls. white.

~~5200'~~ 5600' vine, fls. purple, reputed to be poisonous.

5300' spreading tree 5 m. tall, ~~fls.~~ leaves  
somewhat fragrant when crushed, fls.  
with petals fleshy, fruit dry on tree.

5500' small tree 4 m. tall, as above  
except fruits not ripe yet.

shrub 1 m. tall.

fls. rose pink

leaves thin, infl. sticky, fls. crimson

shrub, fls. purple

shrub 1 m. tall, fls. pink (said to be no  
good as tobacco)

erect, fls. violet.



Feb. 10 - Tena 3-4 km. w. of Loja, P. M.  
steep slope above road 7800-7900

22917

18

19

Hedyotis

20

Hedyotis

21

Agave

valuable, used for fence-rows

"pauco negro"  
(used for fence-rows)  
(also for stock feed)

22

Passiflora

roadside brush

Feb. 10 - Nudo de Villonaco, just west of dike  
low-brushy slope

23

Eccremis

24

Feb. 10 - e. side of Catamayo Valley,  
3 km. e. of Catamayo (La Toma), P. M. Loja.  
dry brushy slope with acacia, cotton + 72904.

25

26

Comp.

27

Capparis

"capote de gorma"  
cut fruit smells like watermelon

28

29

Ayeria

30

Evolvulus

same 2 km. e. Catamayo 5000

31

Heliotropium

(from several plants)

32

Nicotiana

Feb. 10 - Rio Guayabaz, 5 km. n.w.  
of Catamayo (La Toma), Catamayo Valley, P. M. Loja.  
dry, brushy, thorn-forest flat 4250

33

Capparis

34

Capparis

leaves stiff, not fleshy, calyx <sup>corolla pale pink</sup> fleshy, pink  
fl. white, greenish outside, <sup>longer</sup> marked pink  
small bush, flowers white, longistylous  
same, brevistylous.

(photos)

rosette of great, fleshy, bluish  
leaves, erect stalks from center.  
vine, fl. greenish, corolla <sup>pink</sup> white.

fl. bluish, fruit green  
fls. green.

5500'

fls. rose-purple.

fls. yellow

(photos)

small gnarled tree, gum from  
cuts in bark and fruits used  
for sizing hats and mixing with whitewash.

bush, fls. orange.

fls. red.

fls. white.

shrub fls. white very fragrant. looks  
and smells like H. anomalum.

Also shows some variation in corolla  
erect herb, 1 m., sticky, footed, <sup>yellow</sup> yellow.

low spreading tree, stamens white  
same



22935

1 36 *Tribulus*2 37 *Kallstroemia*1 38 *Boerhaavia*2 39 *Euphorbia*5 40 *Celtis*

Feb. 10 - near San Pedro, 10 km. n.w.  
Catamayo (La Tana), Prov. Loja 5500'

1 41 *Evolvulus*

dry rocky slope

Feb. 10 - n.e. slope of Cerro Matapero  
3 km. s.w. San Pedro, 10 km. n.w. of Catamayo, Prov. Loja.  
steep dry slope of decomposed slate

3 42

3 43 *Paspiflora*2 44 *Begonia*1 45 *Galium*1 46 *Senecio*3 47 *Cantua*

2 48

2 49 *Dodonaea viscosa*2 50 *Hedyotis*4 51 *Lapium*1 52 *Drymaria*3 53 *Dodonaea*2 54 *Solanum*1 55 *Gumplera* *capensis*, n.w. of

Feb 10 - near San Chinchas, s.w. slope  
of Cerro Matapero, 14 km. s.w. of Catamayo,  
moist foggy bushy slope 4300'

1 56

1 57 *Stellaria ovata*1 58 *Stellaria*1 59 *Heliotropium*1 60 *Adiantum*

- fl. pale yellow.

- prostrate fls. yellow

- prostrate, fls. straw-color.  
internodes with viscous band, fls. red.

low, broadly spreading tree 6 m. tall.

prostrate, flowers blue.

Catamayo, Prov. Loja.  
slaty shale. 7500'

- vine, fls. dark purple.

- vine, fls. rose, ~~at base~~ <sup>at base</sup>- fl. rose without, white within  
- tangled in bushes

- fls. yellow.

- shrub 1 m. tall.

- rounded shrub 1.5 m. tall.

- erect shrub, 1 m. tall.

- fls. white.

- lactiferous rigid shrub 2-3 m. tall, fls. yellow.

- grayish leaves, petals white, bifid, <sup>anthers</sup> ~~calyx~~

- low shrub (probably an abundant plant).

- shrub, flowers purple.

- heads narrow - black.

(La Tana) Prov. Loja.

- stem fleshy, pinnate white.

- diffuse-prostrate, fls. white.

- prostrate, fls. white.

- shrub 1 m. tall, fls. white

- young leaves reddish.



Feb. 10 - Rio Chiguango, just above Chiguango, 13 km. w. steep canyon wall, rather dry

22961 *Hamelia patens*

62 *Betunia*

Feb. 10 - Headwaters of Rio Salado, 10 km. n.n.w. of Catamayo (La Toma) Prov. Loja. steep slope, rather dry

63 *Adiantum*

shade of great rocks

64 *Rondellia*

65 *Polygala*

66 *Lantana*

67 *...*

shade of great rocks

Feb. 10 - Rio ~~Chiguango~~ near Puente ~~...~~ 10 km. <sup>south</sup> of Potosí, Prov. El Oro 2000'

68 *Crotona Contarea hexandra*

erect bank above river

Feb. 11 - Monoz, 17 km. n.n.w. of Potosí, wet forest on steep slope

69 *...*

70 *Psychotria*

71 *...*

72 *Guettarda*

73 *Hedyosmum*

74 *Palicourea*

75 *Psychotria*

76 *Palicourea*

77 *Burmeistera*

78 *Cephaelis*

79 *Burmeistera*

80 *Cephaelis*

of Catamayo (La Toma) <sup>Prov. Loja</sup> 3500'

shrub, fls. orange, fr. black. roots orange, fls. very white.

km. n.n.w.

young fronds reddish.

shrub, fls. deep rose without, <sup>within</sup> pale pink. fls. <sup>large</sup> purple, roots smell of wintergreen. shrub 1 m. tall, fls. and fruits lavender. fls. white.

shrub 2 m. tall, flowers white, odorless.

Potosí, (near Zamana), Prov. El Oro 4000-4500'

fls. white, fruit orange, fleshy.

unbranched shrub 1 m. tall, fls. white.

shrub 2 m. tall, fls. white

leaves glaucous beneath.

widely spreading tree, fls. white, <sup>leaves</sup> <sup>edges</sup> <sup>arist.</sup>

shrubs or small trees, aromatic, fruit white, fleshy.

elongate shrub, infl. orange, fruit green.

erect unbranched shrub, fls. & fr. white

elongate, scrambling shrub.

fls. & infl. orange, (infl. reddish).

vine-like, bud maroon, fruit bright blue.

unbranched shrub 1 m. fr. immature

vine-like, fruit magenta.

branched shrub, fruit immature



- 22981 *Palicourea*  
 372 *Psychotria*  
 483 *Psychotria*  
 184 *Chusquea*  
 385 *Cephaelis*  
 186

in trail

87

388 *Fuchsia*

Feb. 11 - La Garganta de Pinas,  
 w. of Piñas, El Oro

89

road cut

Feb. 12 - Curtinca, 3500'  
 3 km. e. of Portovelo, Prov. El Oro  
 brush along trail

90 *Psychotria*

Feb. 12 - Curtinca, 10 km.  
 e. of Portovelo, Prov. El Oro

91 *Cinchona pubescens*  
 bushy roadside

~~92 *Cinchona*~~

92 *Emmenanthe*

bushy roadside

93 *Cinchona pubescens*  
 bushy woods

Feb. 12 - ridge between El Madillo  
 + Hacienda Chapel, 30 km. e. Portovelo, Prov. El Oro

94 *Cinchona*

bushy ridge

95 *Cinchona*

bushy ridge

greenish-yellow

- scrambling shrub, fls. & infl.  
 erect unbranched shrub 1 m., fls. white  
 branched shrub 2-3 m. tall, fls. greenish white  
 climbing in trees, two branches seen, both flowering  
 unbranched shrub, 1 m. tall, fl. white  
 fl. white

erect herb. fls. purplish  
 fl. vermillion, no stipules

flower white, lip yellow  
 within, very fragrant

fls. white

4800' sprouts 1 m. tall.

4800' vine-like, fls. white

9500' small tree, 5 m. tall, 5 cm. thick,  
 w. cluster of green fruit (Bark sample)

9100' sapling 1.5 m. tall, sterile

9200' sapling 3 m. tall, sterile



Feb. 12 - Quebrada Chapel, Hacienda  
Chapel, 27 km. e. of Portovelo, Prov. El Oro  
Open burned-over slopes

- 22996 *Hedyotis capitata*  
97 *Hedyotis capitata*  
98 *Vaccinium*  
99 *Hedyotis* com.  
3000 *Hedyotis* "  
01 *Cinchona* "

slope with scattered small trees

- Feb. 12 02 *Baccharis*  
03 *Baccharis*  
04 *Escallonia*  
05 *Escallonia Cinchona*  
low wet woods.

Feb. 13 - Bebedero de Oro, affluent  
of Rio Luis, reg. called Trenallan map,  
N. of Hacienda Chapel, 27 km. e.  
of Portovelo, Prov. El Oro  
steep wooded sides of ravines

- 06 *Cinchona*  
07 *Hedyotis*  
open slopes, scattered low brush  
08 *Cinchona*

Feb. 13 - Hacienda Chapel, 27 km.  
e. of Portovelo, Prov. El Oro

- 09 *Hedyosmum*

- 9000' fls. white, longistylous  
" fls. white, brevistylous  
9100' depressed, fls. bright red pink, <sup>sepals white</sup> ~~inflorescence black~~  
8900' prostrate or almost so, <sup>sepals white</sup> longistylous  
9300' prostrate or almost so, brevistylous  
7700' small tree 4-5 m. tall, rounded,  
several stems 10 cm. thick, fls.  
deep crimson, odorless, fruit  
reddish, bark sample  
9200' aromatic, fls. cream-white  
9200' shrub 1.5 m. tall, fls. yellowish, style purple  
9000' shrub, fls. lavender, stamens white  
8900' small tree 4 m. tall, 6 cm. thick,  
flowers maroon, lvs. glossy  
7900' tree 20 cm. thick, 17 m. tall,  
fls. maroon but with green  
basal 1/4, tube hairy within, odorless  
7700' ~~open slopes~~, fls. white  
7500' tree 30 cm. thick, 18 m. tall  
fls. maroon, greenish  
toward base, tube hairy within,  
odorless, lobes hairy on entire inner surface  
9200' aromatic shrub, fruit  
green, used for tea. "Huainca"



Feb. 13 - El Nudillo, ridge 13 km. e.  
of Portovelo. Prov. El Oro

23010 *Diospyros*

very common in low wet woods

11 *Pinguicula*

sides of deep trail - cut, in dripping fog forest

Feb. 13 - Between Curtinca and  
Mediamontaña, 12 km. e. of  
Portovelo. Prov. El Oro

12 *Cinchona pubescens*  
wet woods

Feb. 13 - El Tablon, 6 km. e. of Portovelo, El Oro

13 *Guadua*

near houses, possibly planted

Feb. 14 - Grade east of Catamayo  
(La Toma), Catamayo Valley, Prov. Loja  
dry brushy slope with mostly legumes & cacti

14 *Euphorbia*

15 *Croton*

dominant in vegetation

16 *Sida*

17 *Baccharis*

18 *Verbena*

common

Feb. 14 Cruz Loma, Mudo de Villanaco,  
6 km. n. of Loja, Prov. Loja  
steep ridge with low brush and open slope

19 *Hedyotis*

20 *Cynoglossum humile*

21 *Plantago*

22 *Weinmannia*

9000'

tree 4 m. tall, fls. white  
waxy, old leaves turning red.  
leaves pale green, involute,

slender tree 6 cm. thick, 7 m. tall.  
fls. crimson, deeper distally,  
fragrant, (approaching *C. officinalis*  
in appearance). Old leaves bright  
red. (bark had been taken from lower part)

canes 3 m. tall, arching at top.

6000'

lactiferous, ribbed stems, fls. dark reddish  
bush 1 m. tall.

fls. orange  
fls. whitish, bush 1 m. tall.  
bush 1.5 m. tall, fls. pink without,  
white within, very fragrant.

9350'

various plants, shrubs 0.5-0.8 m., fls. white.

shrub 3 m. tall.



- 23023 *Fuchsia*  
 24 *Hedyotis*  
 25 *Hedyotis*  
 26 *Hedyotis*  
 27 *Orthosanthus chumborazensis*  
 28 *Hedyotis*  
 29 *Hedyotis*  
 30 *Hedyotis*  
 31 *Galium*  
 32 *Galium hypocarpum*  
 33 *Drymaria*  
 in opening  
 34 *Dracopis*  
 35 *Weinmannia*  
 36 *Fuchsia*  
 37 *Hedyotis*  
 flat open top of ridge  
 38 *Hedyotis*  
 39 *Ilex*  
 40 *Ilex*  
 41 *Ilex*  
 42 *Hedyotis*  
 in bush  
 43 *Weinmannia*  
 44 *Hedyotis*  
 in bush  
 45 *Dracopis*  
 epiphytic on mossy stems of bushes  
 46 *Viola*  
 prostrate on open ridge top  
 47 *Hedyotis*  
 in bush  
 48 *Lycopodium*  
 49 *Hedyotis*  
 steep open ridge

common

same

- 2900' shrub 1 m. tall, fls. vermillion.  
 " shrub 0.6 m. fls. white.  
 " shrub, prostrate, tip erect, fls. white.  
 9100' shrub 1.5 m. tall, fls. yellowish.  
 " erect, fls. pale blue-violet.  
 " shrub 0.6 m. tall, fls. white.  
 9400' shrub 0.8 m. tall, fls. white.  
 9500' shrub 0.6 m. tall, fls. white.  
 " prostrate, fls. & fruits green.  
 " prostrate, fruits orange, fleshy.  
 " decumbent, branches ascending, fls. white.  
 " shrub 2 m. tall.  
 9500' shrub 3 m. tall, buds only.  
 " shrub tangled in others, fls. pendulous, vermillion.  
 9450' lvs. channelled above.  
 fls. white, buds purplish.  
 " ~~same data~~ same data.  
 " dwarf shrub 3 dm. tall, fr. immature.  
 9600' dwarf shrub, 4 fls. white.  
 9700' dwarf shrub, 8 fls. white.  
 " shrub 1 m. tall, fls. white.  
 buds purplish.  
 " shrub 2 m. tall, stamens white.  
 " shrub 1 m. tall, leaves channelled  
 above, fls. white, buds purplish.  
 " fls. scarlet with dark  
 red patch on top of middle of column.  
 " prostrate, fls. purplish  
 white, marked with dark purpl. trans  
 centers, esp. on lower petal.  
 " bush 1 m. tall, lvs. channelled above, fls. white.  
 " prostrate, branches erect.  
 9600' compact, much branched shrub 3 dm. tall.  
 lvs. channelled above, fls. white, buds purplish.



same - steep slope, low woods, - with m.a. g.

- 23050 *Ore*  
 51 *Valeriana*  
 52 *Galium*  
 53  
 54 *Euphorbia*  
 55 *Stellaria*  
 56  
 57 *Manettia*  
 58 *Psychotria*  
 59 *Lisyrinchium* (level place)  
 60 *Faramia*  
 61 *Heiracium* (open place)  
 62 *Manettia*

Feb. 15 - Hacienda Guaycopamba,  
 Rio Guaycopamba (Rio ~~Guaycopamba~~)  
 20 km. se Vilcabamba (La Victoria), Per. Lige  
 flat bottom lands and slopes at sides.  
 vegetation generally thorn forest type, but bottom  
 lands with much ground-water. 5700' - 5800'

63

rocky open slopes

64 *Polygala*

no clay open slopes

65

flats along river, common

66

flats

67

*Cinchona officinalis* L.

flats

68

*Cinchona officinalis* L.

flats

69

flats

70

*Cinchona officinalis* L.

flats, in opening

fls. bronze-maroon.

vine

prostrate, fls. & fruits green.

vine, fls. white.

shrub, fls. green.

fls. white, stems succulent.

shrub, fls. violet-blue.

vine, fls. white.

shrub, fls. white.

fls. yellow.

fls. white within, purplish without, <sup>stipitate black.</sup>

fls. yellow, involucre blackish green.

vine, fls. white.

*Cinchona officinalis* here  
 and in the tributaries, such as  
 the quebrada Amarilla grows  
 in the flat, gravelly riverbed  
 as well as on the lower brushy  
 slopes about them.

canes erect, roots fleshy,

fls. deep crimson-magenta.

fls. purple.

spreading tree, fls. yellow,

fruits said to be edible. "sacha capuli"

vine, fls. white

Tree 3 m. tall, leaves dull or "united"

slightly glossy (bark sample)

Tree 2.5 m. tall, fls. dull crimson.

spreading tree, fruits said to be

edible "sacha capuli"

small sapling, 2.5 m. tall, leaves

semi-glossy "uritayanga"



- 230,71 *Drymaria* (not identified) flat  
 Feb. 15 - Quebrada Amarillo, ~~offspring~~  
 affluent of Rio Guaycumbura 2 km.  
 above Hacienda Guaysapamba, 22  
 km. s. of Vilcabamba (La Victoria), Prov. Loja. 5300-4000'  
 bottom of deep ravine along gravelly stream bed

72

open gravel flat

73 *Cinchona officinalis* L.

thickets at bottom of slope, edge of open gravel flat.

74 *Cinchona officinalis* L.

thickets at bottom of slope, edge of gravel flat.

75 *Cinchona officinalis*

open gravel flat

76 *Lucuma*

thickets at base of slopes

77 *Cinchona officinalis* L.

open gravel flat

78 *Dodonaea viscosa*

open gravel flat, very common

79 *Gaultheria*

open gravel flat

80 *Cantua*

open gravel flat, gravel flat, common.

81 *Richardia*

open gravel flat

82

open gravel flat

83 *Tagetes*

opening in forest

84 *Tillandsia usneoides*

hanging from trees, common

shrub 2 m. tall.

small, <sup>sent</sup> tree 3 m. tall, 6 cm. thick.fls. crimson. somewhat fragrant  
with vanilla-like fragrance

leaves rather dull, not plane.

sapling 3 m. tall, leaves

dull, not plane (bark sample)

sapling 2.5 m. slender leaves

dull, fls. dull crimson, shorter

spreading tree, somewhat

lactiferous, fruit edible "luzma"

sapling 3 m. tall, dull, leaves

very irregular, red when

old. "Unizings"

erect shrub.

shrub 2 m. tall, fls.  
white.

shrub 1 m. tall.

prostrate

prostrate

odor like fennel, rays white.

pendent



Feb. 16 - Upper Quebrada Aguacora  
 affluent of Rio Guaycospamba (Rio <sup>Quindaga</sup> ~~Quindaga~~)  
 e. slopes ~~of n. spur of Nudo de Labanilla~~, 2.5 km. s.  
 of Vilcabamba (La Victoria), Prov. Loja 8300-9000'  
 wet, densely wooded canyon.

23095

*Cinchona pubescens*86 *Cinchona pubescens*87 *Cinchona officinalis*

"hoja de lugma"

88 *Cinchona officinalis*

"hoja de lugma"

89 *Ladenbergia*

"hoja de cafe"

90 *Cinchona officinalis* L.

"hoja de lugma"

91 *Cinchona officinalis* L.

"hoja de lugma"

Feb. 16 - Quebrada Pico Azul, affluent of Q. Agua

92 *Cinchona officinalis* L.

"hoja de lugma"

93 *Cinchona*

hoja ahumada

Feb. 16 - Ridge bet. Quebrada Agua Cora  
 and Q. Amarilla, e. slope ~~of n. spur of Nudo de Labanilla~~  
 above Hacienda Guaycospamba, on Rio  
 Guaycospamba (Rio <sup>Quindaga</sup> ~~Quindaga~~), 2.5 km. s. of Vilcabamba  
 open ridge, bushy above, and in places

94

95 *Hedyotis*96 *Valeriana*

97

98

99 *Paspalum*

Cinchona "hoja de lugma" 8300-9300'

"hoja de yambo" 8400-8600'

"urituzinga" below 8400'

"hoja ahumada" 9200'

"hoja de yambo"

tree 30 cm. thick, 20 m. tall, leaves  
 dull or semi-glossy above. with <sup>small</sup> dead  
 fruiting panicles, & young bud <sup>sample</sup>

sterile tree 15 cm. thick, lvs. large.  
 leaves dull above (bark sample).

tree 10 cm. thick, 10 m. tall, leaves small,  
 glossy above, leathery (bark sample)

tree 6 cm. thick, 8 m. tall, leaves  
 smooth, glossy above, leathery (bark sample)

tree, fls. white, fragrant.

sterile sprout from peeled stump,  
 small tree 6 cm. diam., 6 m. tall,

lvs. glossy above, leathery. Bark adherent (bark sample).

Corra (see above)

9100'

recently felled & peeled tree 25 cm. thick,  
 15 m. tall, lvs. glossy, leathery (bark sample)

9200'

tree 10 cm. thick, 12 m. tall, lvs.  
 glossy above, venulose beneath, brittle (bark sample)

of n. spur of Nudo de Labanilla,

(La Victoria), Prov. Loja

on slopes.

9100'

fls. white.

8800'

dwarf shrub, fls. white

8700'

fls. white.

8600'

low shrub, 7 m. lvs. stiff, fls. pale yellow-green

8700'

fls. violet topals 2 cm. inner reflexed.

8800'

fls. white, corolla single



- 23100 *Symbolanthus*  
ridge with low bush
- 01 *Hedyotis*
- 02 *Myrsine*
- 03
- 04 *Lycopodium*
- 05 *Linum*
- 06 *Eccelesia*
- 07 *Hedyotis*
- 08 *Hedyotis*
- 09 *Hedyotis*
- 10 *Hedyotis*
- 11 *Vernonia*
- 12 *Pellaea ternstroemia* rocky place
- 13 *Hedyotis*
- Feb. 19 - Upper Rio Zamora, trail to Zamora,  
Cordillera Zamora, 7 km. e. of Loja, Prov. Loja
- 14 *Palicourea*
- Feb. 19 - Divide bet. headwaters of Rio  
Zamora and Quebrada Jipim, Cord.  
Zamora 9 km. e. of Loja, Prov. Loja
- 15 *Cinchona microphylla*  
common in dense bush on ridge
- 16 *Cinchona microphylla*
- 17 *Cinchona microphylla*
- 18 *Myrtus*
- 19 *Ardisia*
- 20 *Befaria*
- 21 *Hedyotis*  
common on open, recently burned slope
- 22 *Puya*
- 23 *Cinchona microphylla*
- 24 *Puya*  
common on burned open slope

- 9000' shrub up to 0.3 m. fl. rose, whitish  
in throat, oblique.
- 9000' fls. white, buds purple.
- 9000' small tree, fls. whitish
- 9000' fls. pinkish white
- 9000' erect
- 3300' fls. yellow.
- 9000' fls. purplish blue
- 8500' fl. white
- 8000' fls. white
- 7000' fls. white
- 6500' fls. white, shrub 0.8 m. tall.
- 9000' fls. purple.
- 8000' tufts
- 3000' fls. white, plant prostrate
- 7200' shrub 1 m., fls. dull purple.
- 3500' shrub 1.5 m. tall
- shrub 1 m. tall.
- shrub 1.5 m. tall.
- shrub 1 m. tall, fls. white.
- shrub 1.5 m. tall, fls. whitish.
- shrub 1 m. tall, fls. pink "pazama".
- fls. white.
- shrub 2 m. tall.
- shrub 2 m. tall, lvs. revolute. (bark sample)
- caespitose, scapes erect,  
fls. deep rather dull blue.



Feb. 17 - Headwaters of Quebrada Jipirine,  
Cord. Zamora, 10 km. e. of Loja, Prov. Loja.  
dense brushy mossy forest below

23 125 Cinchona

23 26 Cinchona

23 27 Cinchona

23 28 Cinchona

23 29 Cinchona

23 30 Cinchona

Feb. 17 - main divide of Cordillera  
Zamora (El Condor), between  
headwaters of Rio San Francisco  
and R. Jipirine, 10 km. e. of Loja, P.  
open grassy shrubby flat topped

31

32 Manettia

33 Palicourea

34 Manettia

35 Hedyotis

36 Cephalaria

37 Meritensia granadensis

Feb. 17 - headwaters of n. fork of  
Rio San Francisco, Cord. Zamora (El

38 Cinchona

brushy ridge

Feb. 17 - Ridge bet. 2 forks of  
Rio San Francisco, Cord. Zamora

39 Ladenbergia

brushy ridge

Feb. 17 - S. fork Rio San Francisco

40

wooded slope

41 Rondellia

9100'

crest of ridge.

gnarled tree 5 m. tall, lvs. glossy (bark sample)

sapling, young sprout with lvs. dull above, older

gnarled tree 4 m. tall, 8 cm. thick, lvs. glossy.

sapling, young sprout with dull leaves, older

sapling 3 m. tall (bark sample)

clump of sprouts, 3-4 m. tall, lvs. glossy.

9250'

Loja - Santiago Zamora

ridge.

bush 1 m. tall, pubescent brown, fls. deep magenta

vine, lvs. pallid beneath.

shrub, fls. white.

wine on ground, fls. white.

forming a mat on ground, fls. purplish white

low shrub, fls. blue

forming a mat on earth bank, fruits greenish

11 km. e. of Loja,

Condor), 11 km. e. of Loja, Prov. Santiago Zamora 9000'

bush 1.5 m. tall, lvs. more or

less glossy, stiff.

(El Condor), 11 km. e. of Loja, Prov. Santiago Zamora

shrub 2 m. tall, lvs. dull glossy.

Santiago Zamora

Cord. Zamora (El Condor), 12-13 km. e. of Loja, Prov.

wine climbing in trees, lactiferous, fls. whitish.

shrub, fls. rose-red



203 1945 Ecuador

Feb. 19 - Rio San Francisco, Valley of Rio Jamora,

23102 Cinchona

wet wooded slope

6500'

Feb. 19 - Canillara, ~~12 km~~ Rio San Francisco

wet wooded slope

43 *Ladbergia magnifolia*

44 *Chusquea*

Prov. Santiago Zamora

203

16 km. e. of Loja, Prov. Santiago Zamora

climber of sprouts from shrubs, 1 m. tall

Valley of Rio Jamora, 13 km. e. of Loja, Prov. San. Zam.

tree 7 m. tall, 6 cm. thick (bark sample)

forming dense tangle, not all in fruit.

Coll. Gualberto Rodriguez Feb. 13, 1945  
near Morona, 13 km. above Portovelo,

Prov. El Oro 4000'

A *Cinchona pubescens*  
tree 13 cm. thick  
(bark sample)

B *Cinchona pubescens*  
sprout 4 cm. thick  
(bark sample)



